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AMERICAN INDUSTRY IN A WAR OF MACHINES

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PREFACE

THIS issue of the PROCEEDINGS of the Academy of Political Science comes from the press at the moment that Congress is considering legislative action to forestall inflation. Peculiar timeliness, therefore, marks the papers, here presented, which explore the possibilities of wage adjustments and price controls. What constitutes an adequate program to prevent inflation? If price control becomes an essential part of such a program, should it be selective in curbing only certain " elements of a price system otherwise free, or should it be selective in releasing from restriction elements otherwise held in check by blanket controls? " Vital though these questions are, they emphasize but one phase of the conference and discussion at the Academy's Annual Meeting (Sixty-first Year), held at the Hotel Astor in New York City on November 12, 1941. Under the general rubric "American Industry in a War of Machines ", particular consideration was given to the respective rôles of management, labor and government, as the nation proceeds " to beat its ploughshares into swords." It is hoped that these pages may bring some measure of aid to those upon whom rests responsibility for that coöperative effort which alone can win a satisfying victory.

To the speakers, the chairmen of the various sessions and the participants in the extemporaneous discussions, the Academy is deeply indebted. The arduous tasks of program-building and arrangements for the meeting were shared by the members of the following committee: Henry R. Luce (Chairman), Miss Ethel Warner (Director), W. Randolph Burgess, Nicholas Murray Butler, Frederic R. Coudert, Lewis W. Douglas, Pierre Jay, Thomas W. Lamont, Charles Merz, Wesley C. Mitchell, Shepard Morgan, William L. Ransom, George Roberts, Alfred P. Sloan, Jr., George A. Sloan, Arthur Hays Sulzberger, Eliot Wadsworth, Thomas J. Watson, Owen D. Young.

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PART I

ACHIEVEMENTS AND PROBLEMS OF INDUSTRY

INTRODUCTION *

WESLEY C. MITCHELL, *Presiding*
Professor of Economics, Columbia University
Director, National Bureau of Economic Research
President of The Academy of Political Science

I HAVE the honor to call to order the Annual Meeting of The Academy of Political Science, now in its sixty-first year.

This meeting is devoted to a discussion of "American Industry in a War of Machines". The timeliness of the topic needs no comment; its various aspects will be discussed by four gentlemen, who have had an opportunity to look at it from different angles.

In accordance with the tradition of the Academy, your presiding officer will take no time in his introductions to explain the attainments and qualifications of the speakers; rather, their qualifications will become evident to you as they read their papers. First on our program is Mr. John W. Scoville, Statistician of the Chrysler Corporation, who will speak on "Achievements and Problems of Industry". He has prepared some motion pictures to illustrate his talk, and the technical arrangements for the use of the machine will be made immediately.

* Opening remarks at the First Session of the Annual Meeting.

ACHIEVEMENTS AND PROBLEMS OF INDUSTRY

JOHN W. SCOVILLE
Statistician, Chrysler Corporation

WHEN Dr. Mitchell first asked me to address you on our progress in making defense weapons, I declined for two reasons. First: I would be unable to find out how much we are producing. Second: On account of military censorship I would be unable to divulge the figures even if I could get them. But apparently working on the theory that the less a person knows about a subject the more fluently he can talk, Dr. Mitchell renewed the invitation, so here I am.

Battles used to be named after cities, rivers or mountains. But this war is so colossal that we have The Battle of France, The Battle of Britain, The Battle of Russia and The Battle of the Atlantic. I have come down here from the front where our troops are already in action. We cannot call it The Battle of Detroit, for the fighting is going on in every city and town where factories and shipyards and mines are turning out the weapons of war. It is The Battle of America. Our shops and factories and mines and shipyards are right now in conflict with the shops and factories of the Axis Powers. In modern war, the production of the guns and bombs is more important than the firing of the guns. The actual combat is simply the last phase of the long struggle. This is a war of machines, and, in mass production, our nation is the most powerful on earth. Mechanized war is right down our alley! In the production of war weapons the United States is a giant—a sleeping giant who is waking up. When we get to rolling—God help the nation that stands in the path of our might.

In the transition from peace to war, there will be many mistakes and many opportunities for criticism and faultfinding. Faultfinding will not win the war, but I hope we have a lot of it, just to prove we are a free people and can say what we want to. You are going to hear that the government is falling down

on the job, that labor is falling down on the job and that industry is falling down on the job. I do not believe that the Army or Navy or the government or labor or industry will fail to measure up to the stupendous task which lies ahead, but we will make mistakes.

The conversations I have had with industrialists indicate that they are working heart and soul for defense. With all industrialists that I know, defense of our country has the right of way. This is good. For in the final analysis, our war weapons will have to be made by industry. All over the country, production schedules have been equaled and surpassed. Defense expenditures have increased about 800 per cent over the rate prevailing a year ago. Industrialists are not turning down defense contracts—they are in Washington clamoring for more. I know of no case where an industrialist has gone on strike. Of course there are obstacles and problems.

In the first place, we do not know whether or not we are at war. The only constitutional way in which to start a war is by Act of Congress. And Congress has not spoken. If we do go to war, whom will we fight, where will we fight, when will we fight and what will we fight for? Until some of these little details are cleared up it will be difficult to map out a war program or to place orders with industry for the manufacture of the proper war weapons. The government has a colossal task and I do not want to appear too critical but there is confusion in Washington. The government is not yet well enough organized to carry on its work. Responsibility and authority in many cases have not been clearly defined. There is some overlapping of functions among officials, boards and commissions. One must frequently see too many people and spend too much time to get a decision. There is the inevitable red tape. A Detroit firm sent in a request for a priorities certificate, in six copies. The request was returned with the notation that the government needed only four copies, not six.

Some say we should make no more automobiles because England is not making any. Well, this is not England. In England a person is allowed only two eggs a month, and we have so many eggs that boorish women throw them at the British Ambassador. They say that the automobiles use steel needed for defense. Well, if all nondefense industries were forbidden

to use steel, the steel mills would be operating at about 30 per cent of capacity. In the automobile industry, automobile production has not interfered with the output of war weapons. The suspension of automobile output by the Chrysler Corporation would not have resulted in the production of a single additional tank. In fact, the complete suspension of all normal peace-time production might so disrupt the finances and personnel of a corporation as actually to interfere with the defense effort. When an automobile makes a turn, the car tips over if the steering wheel is turned too quickly. If the transition from a peace economy to a war economy is too sudden, our economy will tip over. There is no advantage in releasing men and materials for defense much faster than defense industries can absorb them.

Our labor policy is interfering with the manufacture of war weapons. If we are really in peril, it is silly to have a federal law which tends to limit the production effort of a defense worker to forty hours a week. If we try to save too many so-called social gains now, we may lose the war and then how much will we salvage of our social gains?

If a private employer enters into a contract with his employees, that he will employ no one who does not belong to some private club, that is presumably a private contract agreeable to the contracting parties. But if the United States government should prohibit a citizen from producing weapons for the defense of his country, unless he belongs to some private organization—an organization with no federal or state charter —that is something else. I do not know what it is—but it is not free America. If, by government decree, a citizen is prohibited from making defense weapons unless he belongs to some private organization, and if United States troops are used to enforce such a decree, then it is more important to reëstablish freedom here than to distribute it over the rest of the world. The sovereignty of our government and the authority of our president have been challenged. If we are to have national unity, our government must have both the will and the power to defend the liberties of all of its citizens.

The statistics put out by the Department of Labor on the man-days lost by strikes are misleading. In order that fifty men may work producing tanks, there must be four men work-

ing in steel mills. And if four men work in steel mills, there must be one man working in a coal mine. The idleness of one coal miner may cause fifty men to be idle somewhere along the line. It is no defense of strikes in defense industries to say that the lost time is small in relation to the total hours worked. John Dillinger could not defend his actions by the plea that he stole less than one per cent of the banking assets. The criminality of an act depends on its nature, and not on its frequency. Time lost cannot be made up. It is lost forever.

In the prosecution of the war effort we need more courage—and less politics. The disturbing labor situation stems from the fact that government moved into an area that in my opinion it should never have entered. I refer to the relations between employers and employees. In labor disputes government should be a fair and impartial umpire and not a party at interest. The turbulent situation that obtains today is the direct consequence of past policies. "Whatsoever a man soweth, that shall he also reap." You have been told that we need more subcontracting. Under normal operations an automobile company farms out around 60 per cent of the business. A large automobile company has from 2,000 to 7,000 suppliers. In the manufacture of tanks by the Chrysler Corporation, 78 per cent of the work is farmed out among 700 vendors. The way to get more small shops busy is to give larger contracts and more contracts to the prime contractors.

The best way to find out what industry is doing on defense is to walk through some of the defense plants. I wish I could transport you to Detroit and take you through the Chrysler tank arsenal. The arsenal covers eighteen acres. It is a quarter of a mile long and two blocks wide. As you approach this arsenal, you feel you are coming to something sinister—a huge, unadorned, flat monument of black glass. You walk inside and hear the clatter of the riveting machines. You see huge horseshoes which can exert a pressure of 100 tons to the square inch, squeezing rivets as you would squeeze a piece of gum. You see oxyacetylene torches at a temperature of 5000° burning out sprocket wheels from steel an inch thick. And finally you see, on three assembly lines, those death dealing monsters—the 28-ton tanks. You would get a real thrill to walk through

this great arsenal. I cannot take you through this arsenal, but I would like to do the next best thing and take you through it via the motion picture camera. I think you will get, from this picture, a better idea of what industry is doing for defense than from anything I could say; and I hope you will enjoy it.

(Following Mr. Scoville's remarks motion pictures of armament production in Detroit were shown.—Ed.)

Remarks by the Chairman

Chairman Mitchell: Our second speaker, on "Butter, Guns or Both", is Dr. Stacy May, Chief of the Bureau of Research and Statistics in the Office of Production Management. Dr. May!

BUTTER, GUNS OR BOTH

STACY MAY
Chief, Bureau of Research and Statistics
Office of Production Management

AT the beginning of the second century, tight-lipped Juvenal rasped his scorn at the frivolity of his fellow citizens who demanded bread and circuses; and since Juvenal's day millions of schoolboys have accepted with little questioning the assumption that such a demand was symbolic of the cultural decadence which, according to one school of thought, brought to an end the glory that was Rome. It is true that another school of opinion blames the mosquito, but to follow that line of reasoning would carry me too far afield from my assigned topic.

So, for the moment, I shall adhere to the Juvenal motif, although I must confess that the demand, on the part of the ordinary citizen, for both the necessities and the amenities of life has always struck me as being a reasonable one. Certainly, without undertaking to uphold the Roman circus as the ultimate in art forms, I should align myself in the ranks of those who expect an economy to provide the general population with pageants for the spirit as well as nourishment for the body. At least, I should make this demand in ordinary times.

The present times are far from ordinary. Today, as I see it, we are faced with a fundamental challenge to the democratic institutions which are our heritage. No other nation has so great a stake in preserving the kind of world in which free men are given free opportunity to define the values and to shape the institutions of the world in which they shall live. No other nation has our potential force to see that the ends and the procedures to which our civilization has been committed are not thrust aside.

It is a form of infantilism for the United States, the most powerful nation on earth, to fear that, if we take our full rank in this struggle, others will distort the terms of the peace that

will follow victory. It is within our power, both to assure that a victory will be won, and to play a major part in defining the terms of peace. At this moment of world history, unhappily, these issues are being spelled out at the points of guns. We have committed ourselves to the production of more guns than the enemies of our form of civilization can muster. Because we allowed them to achieve so ominous a head-start, this task is a genuinely formidable one. Under these circumstances, guns become the bread of life, and butter, if butter is the symbol of competing luxuries, becomes, for those of us who are adult, as dispensable as a circus matinee during working hours.

Since I come to you from a research and statistical agency, it is fitting that I try to introduce some element of definition and measurement into my statement. I already have implied that butter is to be defined as the category of items which compete directly with the production of war-time matériel—with the planes and tanks and ships and guns and ammunition upon which victory depends. There is no virtue, and much folly, in curtailing the production of items which are not in competition with military needs. Accordingly, before we can spell out the terms of a wise policy, we must know which civilian items are unduly competitive, and which are not.

This is by no means as simple a problem as might be supposed. First, it is clear that our population must be maintained at a basic standard of health, strength, decency and morale if military production is to be pushed to the highest practicable levels and sustained there. But the jump from the negligible military output of eighteen months ago up to the limit of our potential is not one that may be taken overnight. It necessitates the formulation of a strategic program; the translation of this into matériel requirements; the drafting and testing of specifications; the building of new facilities where no suitable ones are in existence, and the conversion of such equipment as may be used; the recruitment and training of labor; the procurement of appropriations; the letting of contracts; the weary process of organizing and inaugurating and bringing to peak production the fabricating of sub-components and major components and final assemblies, not to speak of the materials and shapes that go into them; and always there is the problem of internal transportation and the facilities for de-

livering the finished products to the areas where they may be put to effective use.

So the competition of civilian production with military becomes a function of time as well as volume, and the volume factor itself is a ratio between the level of the military production and our over-all economic output. Both of these, in turn, are variables. For a considerable period, at least, increased military production tends to raise the general national income, and the flow of funds generated in the process steps up the demand of civilian consumption in its orthodox spiraling turn.

If, eighteen months ago, when this nation committed itself to a program of defense, we had been able to visualize a program of the magnitude we are commencing to envisage now, both the level of military production and the national income which can be presently achieved, say by the end of 1943, might have been heightened greatly. For decisions might then have been taken to expand our production of industrial materials to plan out larger production schedules, to train the requisite number of workers, and to take the myriad other steps that would have allowed for greater war production upon a greater national production base. Or, alternatively, we might have chosen to reach the levels we are planning for now at earlier dates.

However, there is no escaping the problem that within a given time goal, an augmenting program of military production will come into competition with civilian demands, at a given level, for materials, for fabricating facilities, and for labor and managerial effort. Nor can it be denied that, upon the basis of our present planning, we are experiencing some of such competition now, although our defense effort at present constitutes only about 20 per cent of the highest productive level of our history.

It is requisite then to ask two questions:

First, how much butter have we sacrificed for our munition production to date?

Second, how much fat can we afford to shed in the interest of stepping up our output of war matériel to the substantially higher levels which are clearly necessary?

First, then, on our sacrifices to date.

In July 1940, just as the defense effort was getting under way, national income for the month, as represented by income payments, was approximately $6.3 billions. Total defense disbursements, including British purchases of war matériel upon their own order, were approximately $.4 billions; margin for civilian uses—$5.9 billions. In September 1941, total income payments were up to $7.7 billions and defense disbursements were $1.5 billions; civilian margin—$6.2 billions, or just $0.3 billion more than for the period eighteen months before. For fiscal year 1940, in which income payments totaled $73 billions and defense expenditures for the entire year were only a shade higher than in the single month of September 1941, the civilian margin averaged just under $6 billions per month, or slightly higher than in July 1940 and slightly lower than in September 1941. And the national income in fiscal year 1940 was the highest that we had achieved since 1929. It is clear that through the first three quarters of the current calendar year, at least, there has been no over-all sacrifice of civilian consumption for military. In fact, the statement that we have been maintaining the consumers' share of income payments at around $6 billions a month, or $72 billions a year, grossly understates the present consumer position. Under the military expenditures are funds for the maintenance of the armed forces, which now number about two million men, including their food, clothing and other items normally supplied from the civilian budget. The military disbursements include also considerable expenditures of government funds for new facilities, and not all of these, by any means, are completely specialized for military production. A substantial proportion has been allotted to processing facilities for aluminum, magnesium, steel, and a variety of other metals. These and probably also an important proportion of the aircraft factories will fill future use as capital equipment for civilian production.

The point becomes even clearer when we look at the direct evidence of the consumption markets which this year are achieving record highs for all time. Retail sales for the first nine months of 1941 were running 20 per cent higher than for

the comparable period in 1940. Currently, they are running at an annual rate which, measuring both in 1939 dollars, is about 34 per cent higher than retail sales in 1929.

I have no wish to overwhelm you with figures, but it seems particularly relevant to draw your attention to what has been happening in the field of consumers' durable goods; for these, of all civilian purchases, are most directly in competition with military production. They compete for raw materials. They compete for fabricating facilities. They compete for skilled labor. Again we are looking at all-time highs. Consumers' durables sales for 1941, even with the reductions under quotas established for the end of the year, promise to be over 10 per cent higher than in 1940, and 60 per cent higher than in 1935-36. Sales for refrigerators in 1941 will be higher than ever before—perhaps 15 per cent higher than in 1940, more than twice as large as in 1939, 500 per cent of the 1929 level. Washing machines and ironers will sell 30 per cent above 1940, double the 1929 level. Gas and electric stoves this year will top last year's sales by 15 per cent, 1929 sales by more than 40 per cent. Passenger automobiles will have for 1941 higher sales than in any year except 1929 and 1937 and they probably will be within 3 per cent of the latter year's record. If the automobile companies are able to get sufficient materials to build up to the limit allowed under the announced 50 per cent cut (and I doubt if they will), their 1942 production would just about equal the level of 1938.

Surely that point has been sufficiently labored. No one can point to consumer sacrifices that have been made for the defense effort thus far, for the durable goods' figures speak for themselves and the records are comparable in the consumers' non-durable and service fields. What then of the second question phrased—as to the margin of fat upon which we could trade in order to lift our defense effort to drastically higher levels in the shortest practicable time?

Switching from calendar to fiscal years, and with emphasis upon the fact that I am now talking about production plans already formulated and not about the potential levels which might be reached, we should achieve in the current fiscal year, ending June 30, 1942, a level approximately $24 billions for

military expenditure. For fiscal year 1943 this should be pushed to more than $32 billions. But again, allowing for all readjustments and dislocations, it is probable that total national income payments in fiscal year 1943, with $32 billions of defense expenditures, would be in the neighborhood of $103 to $105 billions, so that again the margin available for civilian purposes would be well above the $70 billion level as in 1941 and 1942, although certain classes of consumers' durables would be drastically cut. Lest this seem to be a thoroughly contradictory statement please remember that durables other than housing have averaged only about 10 per cent of total consumer expenditures.

The real qualification comes from the unlikelihood that military procurement for fiscal year 1943 will be held down to a $32 billion level. It can be markedly higher than that, and it should be as high as we can make it. I already have pointed out some of the margins which we have to draw upon. Nondefense construction in the current calendar year will total $5 billions. Nondefense durables, including equipment for civilian industries, will be more than $15 billions. A large proportion of both could be diverted to defense, assuming that there was the will and the boldness in execution to do so.

Other nations, which are diverting a far larger share of their total productive effort to war than we, or even than we have presently planned, have tightened their belts and cut into their civilian supply of goods and services in order to heighten the war effort. None has had such a reservoir of construction and durable goods' facilities as we have, ripe for conversion to the production of military items with which they now compete.

Surely, we can live on our stocks of refrigerators and stoves and washing machines and typewriters and shoe machinery and printing presses and steam shovels and other household and industrial gadgets for awhile. Surely the 27.5 million registered passenger cars will carry us over the road adequately enough for a few years, without building millions more.

Surely the times are grave enough for us to focus our best efforts to redeem our commitments and our responsibilities. For in these times, guns are bread; and our elevation of spirit

and our self-respect will be served in full measure if we commit ourselves fully to their production, for the preservation of a world in which free men may shape their own institutions. Circuses, and even the butter which makes our bread more palatable, may wait until the work, that is to be done, *is* done.

Remarks by the Chairman

Chairman Mitchell: Our third speaker, on "American Air Power", is the Honorable Harry F. Guggenheim, former United States Ambassador to Cuba. Mr. Guggenheim!

AMERICAN AIR POWER

HARRY F. GUGGENHEIM
Former Ambassador to Cuba

CAN America gain superiority in the air? A flippant, but perhaps accurate, answer is the one given by an American visiting London in World War I to the question: "Who do you think is going to win the war?" Mindful of Britain's ability to lose all the battles and then win the war, he wisecracked back: "I think the British—they've done everything to lose it and they haven't lost it yet." So it is with American air power. In 1932 the United States led the world in aviation but a year later, when Hitler came to power, commercial, military and naval aviation, instead of being encouraged in America, were discouraged. There are volumes of evidence to prove this statement. They can best be summed up in the fact that so little consideration was given to air power that the secretaryships for aviation in the War, Navy and Commerce Departments were not filled. Apparently, a full realization of our need for air power came to the administration as recently as May 16, 1940. It was then that the President called for a program of 50,000 military and naval planes. The aircraft industry was completely unprepared for this order and the federal government was in no manner organized to direct it. So ill-organized was the federal government that the initial direction of the aircraft program was placed in the hands of the Secretary of the Treasury. There has not been, and there is still lacking, a centralized authority headed by an individual with the power and responsibility for the production of aircraft complete.

Exclusive of planes operating with the fleet, in so far as quality of our aircraft is concerned, with the one exception of the heavy bomber type, America at the time of the President's call for 50,000 airplanes was trailing, not leading, other countries. Our heavy bombers in some particulars led the rest of

the world for two reasons: one, their development was the direct result of America's leadership in long distance passenger planes produced by our commercial airlines; and two, military authorities in Europe had not visualized the need for bombers capable of traveling *long distances* with heavy loads. But even our superior heavy bombers had their shortcomings. They lacked armor plating, power-driven gun turrets, self-sealing gasoline tanks, and heavy enough caliber guns to pierce the armor plating of modern combat planes. All of our types were deficient in these particulars. America was caught flat-footed not only in ability to produce, but also in quality of aircraft.

Since the determined but disorganized effort to build air power began, there have developed innumerable, and sometimes quite unpardonable, bottlenecks in our aircraft production program. The outstanding one in recent weeks has been shortage of propellers. Among the other limiting factors of production in the past year and a half have been engines, machine guns, radio equipment and other instruments; landing gear and other vital plane parts; and essential materials. In addition, strikes, whether for increased wages and better working conditions or on account of competing union disputes, have lost millions of man-hours for aircraft production.

The morale in our factories is low. I am going to quote from a letter to me from a competent and impartial authority on this subject:

> I feel that were we to imbue on the average factory floor the enthusiasm for the job and for national defense, we might well benefit by as much as 30% increase in the individual worker's and the individual plant's output without any sweating or speeding up of the employee or without any serious increase in the problem of maintaining physical property in efficient condition. The integration of this increase in the output of individual plants might well result in an overall increase in production for the industry as a whole approaching 50%, an increase not only of great value to the nation but one that would be accompanied with an actual reduction of the strains and burdens now placed upon executives and administrative elements of management in the various plants. Indeed I have the feeling that our problems might, under these conditions, be reduced largely to arranging for the availability of adequate supplies of raw materials.

At the beginning of our effort, with British experience at our disposal, new types were projected and old types modified as well as possible to serve as temporary makeshifts. We have been helpful to Great Britain. We have supplied trainers, grade II combat planes, and some very useful bombers. Our help has not been nearly as great as we or she would have wished, but it has been consequential on account of Great Britain's extreme need at the time. At the present time we have some very superior types ready for quantity production in all categories; namely, fighters, dive bombers, and light, medium and heavy bombers, and patrol boats.

In the fighter classification the United States Army has concentrated on the production of three types equipped with 1,325 h.p. Allison in-line liquid-cooled engines, and one powered with a 2,000 h.p. radial air-cooled engine. The former are the Lockheed P-38, Bell P-39 and Curtiss P-40, and the latter the Republic P-47. The United States Navy has stuck to air-cooled power plants and has developed three excellent fighters, the Brewster F2A1, Grumann F4F-3 and the Vought-Sikorsky XF4U-1, the latter being called by the Navy "the fastest fighting plane built in America." Speeds approaching or exceeding 400 m.p.h. are attributed to the P-38, 39 and 47 Army fighters; the Navy group, with the exception of the Vought-Sikorsky XF4U-1, are rated 350 to 375 m.p.h. Navy planes are under a constructional handicap due to the necessity of operating them from ships instead of land bases.

In the heavy bomber class, the United States Army leads the world with its four-engine Boeing B-17 series "Flying Fortress" and its Consolidated B-24. Nothing built in Europe compares with them for speed, range, bomb capacity and ability to maneuver at exceptionally high altitude. Both are supercharged for operation above 35,000 feet.

In the dive bomber class, the United States Navy has set the pace with the Curtiss XSB2C-1, which exceeded specifications calling for a dive bomber that would carry double the load, twice as far and with 100 m.p.h. greater speed than any existing type. The Brewster F2A-2 and Douglas TBD-1 are other dive bombers now in production.

In the medium bomber field, the United States Army has three outstanding types, the Martin B-26, Douglas A-20-A

and North American B-25. These bombers have top speeds of around 350 m.p.h.—close to that of Europe's standard fighters, the Spitfire and Messerschmitt.

Our Navy has developed three superb patrol bombers, the Consolidated PB2Y-2, a giant 4-engine plane, the Consolidated PBY-1 and Martin PBM-1, long-range twin-engine patrols.

Our aircraft engine production really centers in three manufacturers—Pratt & Whitney, Curtiss-Wright, both producing 1,200 to 2,000 h.p. radials, and the Allison Engine division of General Motors Corporation, which produces a liquid-cooled in-line engine of 1,325 h.p.

All three of our leading engine manufacturers have greatly expanded their facilities in addition to subcontracting with automobile manufacturers, who are contributing much in developing mass production methods. They are making a similar contribution in our plane manufacture.

One of the unfortunate results of our neglect of military aviation is that, due to lack of orders in America, both Pratt & Whitney and Curtiss-Wright were forced to issue licenses abroad, Germany included, for the manufacture of their engines.

In our development of better aircraft types, we have benefited by the complete coöperation and air experience of Great Britain, who so far has outwitted the Germans. Unless we should be too late with our air power, we shall have the great advantage over other countries of equipping our air squadrons completely with up-to-date planes. This is a luxury that powers engaged in a war cannot afford.

What the Germans have up their sleeves for the future, we do not know. Germany has built her air power under a highly organized plan of mass production. In the development of new types of aircraft, putting too many of your eggs in one basket is a very dangerous policy. Under Germany's industrial strain, she may be forced to do so in order to keep up the necessary quantity of aircraft to feed her highly extended lines. Our potential production is so much greater than Germany's that we should not be faced with this risk.

The training program of both the Army and Navy is in high gear. The Army has reached the point where it is train-

ing pilots at the rate of 50,000 a year. The Navy is fast approaching its present authorized complement of 17,000 pilots and 36,000 mechanics.

I believe America can gain superiority in the air because, by the greatest stroke of good fortune, we have been given time to look back on what we did not have the vision to foresee in the last decade. In spite of our neglect of air power in the past and the delays in our air defense program, first thanks to England and now to Russia, we are being given precious time, which we must no longer waste.

In my opinion the battle for South America is the greatest threat of World War II to Americans. I believe that air supremacy will decide the battle for South America. We have been told that North America is impregnable because no hostile power can land on American shores with a force strong enough to conquer us. Is not our real threat air invasion by way of South and Central America, should that part of this hemisphere be conquered by the Nazis?

Hitler's machinations in preparation for this conquest are well known to students of Latin America. In the past year much of the Nazi technique as practiced from Cape Horn to Mexico has been reported in the daily press. Throughout these countries, in addition to unnecessarily large numbers of diplomatic and consular Nazi agents, there are numerous German colonies and German business agencies. Under the guise of German cultural societies, these forces have been welded into effective Nazi propaganda and political machines. Their function is to propagandize the people and corrupt and bribe newspapers and politicians. The first objective is the creation of Nazi-minded governments throughout Latin America under the dominant influence of Nazi agents. German economic control immediately would follow and German commercial airlines and commercial airports would crisscross all of South America. The Luftwaffe could then at will seize and occupy every one of these countries. Latin America would be as effectively browbeaten and enslaved as were the Balkan countries. In our past weakness we would have been ineffective against this strategy. Once Nazi-minded governments had been set up in South America, our diplomatic protests against German political ac-

tivities would have fallen on deaf ears. Our only recourse to preserve the independence of this hemisphere would have been armed intervention, for which we were quite unprepared.

This was the strategy and Nazi dream a year and a half ago. But the miracle of England has taken place—Great Britain has not been invaded; the Mediterranean and Africa are still under British control; the battle for Russia, contrary to all expert opinion abroad and in America, has lasted for five months and still surges strong. In the meantime, America can gain superiority in the air, in spite of everything that we have done to lose it. Hitler may be too late and the battle for South America can be wrested from him so that this hemisphere can remain free. United States' diplomacy in South America has in the last year reached a high point of success. Its greatest ally has been the growing armed strength of the United States. Latin America is far less exercised today over the specter of Yankee imperialism than she is over flesh and blood Quislings, Gestapo agents, and armies of occupation enslaving the people of Europe.

Our air superiority must be so great that the Luftwaffe will be unable to occupy any countries in this hemisphere. Today our air power is by no stretch of the imagination equal to any part of this task, were Germany in a position to direct the attention of her Luftwaffe to America. How long she will be occupied in the Eastern Hemisphere is the subject of much uncertainty and guessing by military experts. That we have some precious months of time, there is no doubt. In that time we must direct our air program with far more vision and efficiency than we have in the past if the battle for South America is to be snatched from Hitler.

Our present lack of preparedness in the air is not due, as some would have us believe, to unwillingness on the part of Americans in the past to spend money for national defense. We have in the last decade built the greatest navy of any power in the world. Our military leadership, however, completely lacked the vision to foresee air power in World War II. Aviation enthusiasts were regarded as visionaries and air power derided by those in control of government on the advice of our military experts. These same military authorities today are responsible for our air power. The United States has not an

air force. Our Army has an air corps, whose name has been recently changed to Army Air Forces and begrudgingly given added powers, and our Navy has a Bureau of Aeronautics. These air services, splendidly officered and manned, are merely auxiliaries to the Army and the Navy.

The British have the Royal Air Force, which is quite independent of the Army and the Navy. It deserves the credit for the development and use of superior fighting planes, the Hurricanes and the Spitfires, that saved England from destruction by day bombing. The Germans have the Luftwaffe (Air Force) originally headed by Goering, World War aviator. The Luftwaffe, consisting of seven independent air forces with a strength of more than a million officers and men, is a development, training and storage reservoir for all German air power. The Luftwaffe was the spearhead of all the blitzkriegs, including the one which in a few weeks wiped out the guaranteed army and certified Maginot Line of France. The Luftwaffe accomplished what our military and naval authorities in this country have persistently said was impossible. Crete was occupied by air force and air-borne troops alone in the face of the opposition of a powerful fleet in complete control of the sea. Britain and Germany have demonstrated the success of independent air forces. But even more important from an American viewpoint, our air power under military control has been shackled.

If the United States is to make the most of this Providential time for our national defense, we should have a United States Air Force. The higher commands of the Army and the Navy have consistently opposed this departure from our traditional organization. Ten years ago the higher commands of the Army and the Navy advised that the secretaryships for Air in the Army and the Navy should not be filled. Only a little over a year ago was the position of Assistant Secretary of Air in the Army filled and only two months ago was the appointment made for the Navy. Both of these appointments of veteran aviators of the last war, men of ability and experience, were steps in the right direction, but they do not go far enough. These able new assistant secretaries are unable to build American air power for the future as Germany has built it in the past,

because their authority is limited. They are part of and enmeshed in the great Army and Navy machines. Our Army and Navy should be given all the air personnel and equipment they need for use with troops and ships, as they have in the past. There is nothing in this suggestion to prevent the air corps of the Army and the fleet arm of the Navy training with and being in tactical control during battle of Army and Navy, respectively. But, in addition, we need an offensive and defensive air force independent of Army and Navy high commands.

Research, training procurement and long-time planning for war in the air in the next decade need for American superiority an independence and authority that are lacking in our present air organizations. Military and naval officials argue to the contrary. They contend that we must not risk a change during the emergency. Vital changes are made only in emergencies. A change was recently announced in the Russian command for the defense of Moscow with the enemy at the gates. We must not wait for the revitalization of our air power until Hitler reaches South America. They also contend that confusion and failure will come from the introduction of a third war machine in our national defense organization. These arguments are contrary to the experience of the greatest air powers in the world today. Our military experts can hardly admit that we cannot become for a very long time, if ever, a great military nation. But the common sense of the American people makes them realize it. We are not a nation of warriors. However, we are inherently nearer being a nation of airmen than any other people. We gave birth to the airplane; our commercial aviation is greater than that of the rest of the world combined; we are a country of mechanics; we can build the greatest air power in the world in a few years' time, if airmen are cut loose from traditional military curbs. We must not be content with an air corps that will merely accept air power as it has been developed in World War II and duplicate it. We must have a United States Air Force headed by airmen who have the vision and energy to project our air power into the next decade. For this we need a Secretary for Air in the Cabinet of equal rank with the Secretaries of War and Navy. The importance of air

power to America deserves in the President's Cabinet a man of energy and ability, devoting his full time and effort in welding our magnificent air personnel and air industry into a unit that will give us superiority in the air. The higher commands of the Army and Navy who lacked the vision to foresee how air power in German hands could destroy European civilization still exercise the influence to deny us an air force. This influence should be removed by the President and the Congress before we are confronted with the battle for South America.

Organizational and administrative difficulties in the inauguration of a United States Air Force would be great. In addition, there would remain obstructing our road to air superiority some of the inherent ills of our whole national defense program. But the vital need for air power is a new approach to everything that air warfare entails, which our military leaders of today reared in the last war have indicated they are unable to give us.

In closing I should like to quote from an address that I made before the Herald Tribune Forum in 1936. The view expressed was generally held by those expert in aviation at that period. Yet our military authorities were negligent and so today we are wholly unprepared for war in the air. I quote:

> Progress in civil aviation has perhaps been surpassed by the power of destruction that is now in the hands of the military and naval aviation forces of the world. In the World War airplanes were annoying to the enemy; in the next war—should it come tomorrow—their destructive power will be so extensive and absolute that it could only be portrayed by the cruel conceptions of such a maniacal genius as Wiertz in his loathsome paintings of the horrors of the Napoleonic wars.
>
> In the next war tons of bombs will be effectively placed instead of the futile dropping of pounds of bombs in the last war. Air attacks will be made not with tens of planes but with hundreds of planes. Airplanes have a range today not of hundreds but of thousands of miles. Airplanes will fly in war not "weather permitting" but in all weather. Many planes may be intercepted but enough will get through with their burdens of destruction to accomplish their mission.
>
> The power plants, water supply, bridges and railroad centers of great cities will be effectively destroyed with the concomitant utter demoralization of the population. This is the most humane picture of the next war from the air. In this picture non-combatants have been only indirectly molested. But this is not the final picture. If those indirect means will not subdue an enemy, will a war-mad leader hesitate to pour

ton upon ton of poisonous gas with its vomiting death upon the population of a city? Or will he hesitate to shower a community with the newly devised incendiary bombs that burn through steel and are unquenchable by water, and that cause excruciating pain before death when a particle touches a human being?

After World War I conservative students of aviation progress were sure of the trend of air power, but awaited confirmation of their beliefs in the test of battle. World War II has confirmed hopes of even aviation's most optimistic apostles. Air development is still in its infancy; its growth must no longer be stunted by outworn tradition. Air power must no longer be grounded by military and naval power.

Remarks by the Chairman

Chairman Mitchell: The fourth and final paper upon our formal program, "Plowshares into Swords", is to be presented by Mr. Frederick C. Crawford, President of Thompson Products, Inc., of Cleveland. Mr. Crawford!

"PLOWSHARES INTO SWORDS"

FREDERICK C. CRAWFORD
President, Thompson Products, Inc., Cleveland

Part I—Industry's Assignment

DURING the last war our Navy called for suggestions to control the submarine menace. Will Rogers is said to have reported to a high-ranking admiral that he had a suggestion. He pointed out that submarines cannot function in boiling water and suggested that the Navy arrange to boil the ocean. The admiral replied: "Will, that is a splendid idea, but tell us how you propose to boil the ocean." Will replied: "Admiral, I am merely giving you the general idea. You will have to fill in the details."

I fear that the time allotted for my subject, "Plowshares into Swords", will not permit me to do more than present the general idea. You will have to fill in the details.

Starting from the premise that national defense is the first job of this country and that all other purposes must be set aside, I would like to take an approach to this subject which leads directly to the greatest problem confronting industry today. Your first speaker has given you a fine idea of the achievement of industry. Your second speaker has given you figures that reveal the size of the problem.

I hope to show:

First, that a successful conclusion of this war depends on industry and our industrial system, for victory will be won or lost in our factories, since it is a mass production problem;

Second, that there are serious uncertainties caused by the very nature of this war and inherent in the problems of our General Staff that complicate the mass production of war materials;

Third, that industry has made phenomenal progress in spite of these uncertainties; and

Fourth, a lack of government policy in certain critical matters imposes added and needless uncertainties which must be removed before a completely efficient "all-out" war effort can be attained.

Implements, not fundamental principles of war, undergo change. A good offense is still the best defense. Weapons, however, are constantly improved, and occasionally a great new weapon appears.

Sometimes, through foresight or invention a combatant acquires a great new weapon not immediately available to his opponent. The advantage thus secured may change the course of history. We have witnessed such an occasion during the first two years of World War II.

The new weapon to appear during our generation is the internal combustion engine, and its use in automotive equipment. It is the greatest instrument of war ever invented.

When used by coördinated land, sea and air forces the result is popularly known as "blitzkrieg". Thirty-five years ago the United States Army acquired the first airplane, but the thought that one soldier might command fifty horsepower was so fantastic that the future of aircraft was discounted. Later, an alert American Staff first conceived "blitzkrieg", but a peace-loving American people prevented its development.

Although still in its infancy in World War I, the internal combustion engine made possible the submarine that almost defeated England, as well as the taxicab army that saved France. After the war France abandoned the internal combustion engine for a static Maginot Line. England was content to rely on sea power. At the same time Germany fully recognized the possibilities of mechanized equipment and immediately proceded with its complete exploitation. Germany had been able to pierce the enemy lines in World War I, but had been unable to follow through. She saw a solution to this problem in automotive equipment. She also saw the full value of coördinating its use at sea, on land, and in the air.

Germany built her new war machine around the internal combustion engine. At sea, on land, and in the air, troops were equipped with these new fighting machines of great mobility and striking power. The results have been astounding. Using

this new and greatest weapon of war, Germany has conquered all of Europe and challenged the world. To meet this challenge we must develop the internal combustion motor in all its uses. We must outbuild Germany in quantity and quality.

The military results obtained with this new weapon are of great interest. Tremendous power for destruction is put in the hands of a single soldier. The driver of a mechanized car commands 100 horsepower. A tank pilot uses 500 horsepower. The pilot of a great bomber controls 8,000 horsepower with the movement of his hand. The new weapon in the form of aircraft replaces artillery, carrying the shell directly to the target. The fort, heretofore an instrument of defense, is put on wheels and becomes an offensive weapon of terrible striking power. All naval warfare has been changed. Navies have been driven 200 miles out to sea. They can no longer reach coastal defenses. The air force does not recognize front lines. Supply lines and factories are destroyed far behind the armies. Civilians find themselves constantly under fire.

These new weapons of war built around the internal combustion engine present great problems never before faced in the preparation for national defense. The internal combustion engine and all the accessories and devices that make up mechanized equipment and aircraft are highly technical. Engineering, metallurgy, chemistry—in fact, every branch of science is called upon in the production of these devices. Vast quantities of material are consumed. Extreme accuracy, skill and precision are required. In this new type of warfare each soldier requires fifteen tons of the most expensive equipment. One hundred years ago two laborers behind the lines sustained one soldier at the front. Today eighteen skilled men are required to keep one soldier supplied. The transportation problem becomes enormous. A modern bomber can consume two and one-half tons of fuel per hour at full speed. This is at the rate of an entire tank car of fuel in ten hours of flight. A modern fighting plane can fire more ammunition in a given period of time than formerly could be fired by an entire regiment. To operate the new equipment of war, armies must employ many highly trained technicians with years of training.

Victory will come to the side which can produce the greatest amount of the most modern equipment. It is a war of indus-

trial production and will be won in the factory. Success is up to industry.

Part II—The Problem

American industry realizes its responsibility. It has seriously undertaken the problem of arming America. In two years' time American industry must produce sufficient quantities of equipment to match a ten-year accumulation from German factories. Only mass production methods can possibly accomplish this tremendous task. A prime requisite to the preparation of any nation for modern war is the possession of industrial ability in mass production methods, access to raw materials, and a great industrial plant as a foundation on which to start.

Only great industrial nations can play this game of modern war. Here we find a bright spot in the American picture—a spot too often unrecognized by the American public. America starts with a great industrial plant unequaled in the world. It is the product of fifty years of free enterprise. In every branch of industry essential to war we find productive machinery, skill and organization unequaled by any other nation. The great American steel industry produces more steel than all the rest of the world together and excels in the quality of its alloys. Our great, well-organized oil industry is larger than all the rest of the oil industry of the world and leads in quality of fuels and methods of transportation.

The machine-tool industry—so vital to our defense—working under a free enterprise system has performed miracles. The machine-tool builders have literally transferred much of the skill from the hands of the trained worker to the machine itself, and in doing so have added something in the way of precision and accuracy far beyond the ability of the finest workmen. In 1917 the most skillful of workers had difficulty in attaining accuracy to one one-thousandth of an inch. The modern machine tool enables an unskilled worker to work to one-fifth of one one-thousandth of an inch with a minimum of time and effort. This fact alone is more important to the defense of America than possession of a million men under arms. An example of the wonders of machine-tool performance is the thread grinder. An unskilled operator inserts a blank in the machine, closes a

door, turns electrical switches, and goes away not to return until the machine has stopped. In the hopper of the machine is a finished piece with perfect thread, accurate to one-fifth of one one-thousandth of an inch. Today this ingenious machine is being adapted to many other operations. In one adaptation it performed seven operations at once with great accuracy, reducing to a few minutes what formerly required one hour.

We have agreed that this is a war of internal combustion engines. Free enterprise in America has given us a motor industry that is the envy of the world. Years of research, both in production methods and in quality and design, have given us manufacturing facilities and motor performance unequaled elsewhere in the world. Years of research, to achieve the power and dependability of the modern air-transport motor, make possible the successful 2,000 horsepower motors of today and will bring the 3,000 horsepower motors of tomorrow.

In spite of all that you have heard to the contrary, without the persistence, skill and achievement of the aluminum industry over the past fifty years, America could not have the air force that we are building today.

Most important of all, private enterprise has given us great reserves of trained and skilled technicians who can successfully tackle the job of war production. When our government asked the Chrysler Corporation to manufacture tanks, a war weapon which Chrysler engineers had never built, a staff of 380 highly trained men—specialists in chemistry, metallurgy, design, production, construction—was assigned to the job. Not only did this group of technicians cover every phase of this highly technical problem, but they were a group who had worked together, knew each other, and were trained in teamwork. Only American industry could supply such reservoirs of talent so quickly. Surely, this great American industry, the foundation upon which we build our national defense, is the bright spot in the American picture.

The job before us, then, is the conversion of our industrial abilities to production of the supplies of war. In two years we must surpass the accomplishments of Hitler during the eight years before the war and the two years since. This is a job for mass production, and, unfortunately, most conditions ordi-

narily considered essential are absent. Such lacking conditions are: (1) a known and fixed production goal; (2) completely standardized products; (3) ample time to build the machines and tools of production; (4) large stocks of raw material on hand to feed the conveyors of mass production lines.

For eight long years Hitler enjoyed these conditions. Intent upon a world war of aggression, he built and tooled great factories and accumulated large stores of the materials of war. It is said that one third of the world's tungsten output was hoarded by Germany during these years. For eight long years under ideal conditions for mass production, Germany turned out great quantities of war equipment until she had piled up the vast reserves so necessary for a successful campaign. After the outbreak of war, while depending upon these reserves to supply the forces in the field, Germany could devote her whole industrial effort to the development and production of the latest types of war equipment redesigned to incorporate improvements resulting from lessons of actual warfare.

There was no such opportunity for American industry. Because of the absence of any preparatory period and the changing nature and demands of the war itself, no such ideal manufacturing conditions exist for us. In their place are serious uncertainties.

Our goal of production changes monthly as our government follows the fortunes of war. After Dunkerque, five billions were appropriated for defense. After the collapse of France this was increased to a fifteen-billion-dollar program. With the fall of Greece and Crete the magnitude of the job became more apparent. Our goal then became thirty-three billions of production. Now, as the arsenal of democracy, we plan for a sixty-billion-dollar goal only to learn that this will be again increased in the near future. New factories prove wholly inadequate before their production lines start. Walls are pushed out, machinery is rearranged, and material piles are depleted, making the job vastly more difficult than if we could have known the ultimate goal at the beginning.

Next is the impossibility of standardizing design. The lessons of active warfare bring more changes and improvements in design in one year than took place in twenty years of peace. In

the aircraft industry, not only the lessons of war but forced progress in technical development accelerate the change of design at a tremendous rate. It took fifteen years to raise engine horsepower from 400 to 600. Today we jump from 2,000 to 3,000 horsepower in twelve months. The Battle of Britain was opened by little fighter planes of 800 to 1,000 horsepower. They weighed 6,000 pounds and had a flying range of 150 miles. Forty-five minutes at full speed and the pilot was out of gas. Thirteen seconds' firing time and the light machine guns were out of ammunition. Then followed a struggle for aerial supremacy. England added eight machine guns. Germany countered with a leak-proof gas tank and armor plate. England developed the power gun turret. Germany countered with a 23-millimeter cannon throwing explosive shells. Each strove to gain the advantage of more altitude and greater speed. Weight and gun power were constantly added. Designs changed. Today, in the Battle of Germany, a fighter must range 1,000 miles at 400 miles per hour; supercharged to reach 40,000 feet of altitude, carrying two tons of fuel, a half-ton of armor plate, eight machine guns, four cannon, a ton of ammunition—the whole weighing 12,000 to 15,000 pounds and requiring a minimum of 2,000 horsepower—truly, a battleship of the air and a far cry from the fighter plane of eighteen months ago. There is no possibility of complete standardization of design.

The story is told of a new tank designed by the Italians to incorporate the lessons of their early Greek campaign. It had three speeds backward and one forward. When asked why one forward speed was provided, they replied, " That is for use in case we are attacked from the rear."

America must attain a degree of mass production sufficient to build great reserves of war equipment and at the same time change and improve design day by day. Improvements to meet the lessons of war cannot be sacrificed. The combatant with the largest number of the latest type equipment will win.

Lack of time is another uncertainty. No one knows when the next blow will be struck. There is no time for deliberate tooling. Makeshift methods, rush work, long hours of overtime must speed production to the utmost while new factories are being built.

Another uncertainty is the bottleneck of raw material. Our program consumes an amount of raw material five times the requirement of the normal year. Production lines start and stop and transfer from one order to another.

Under these uncertainties industry tackles its greatest job of all time. Fifty per cent of all productive capacity of our country is required. Twenty-five million man-years of work are being scheduled. A great industrial army of eleven million men must be expanded to twenty-seven million. The airplane bomber program alone is larger than the whole automobile industry. Fifty thousand airplanes must be turned out in a single year. When one considers that the commercial airlines of this country, carrying millions of passengers and tons of mail, use only 350 transport ships, the size of our undertaking seems fantastic.

Thirty thousand tanks a year powered with airplane motors add to the great burden put upon our airplane engine plants. Fifteen thousand motors a month, each with 9,000 separate parts of greatest precision, multiply into a staggering goal for the precision factories of this country. We must have merchant vessels to transport the equipment of war and a great second-ocean navy to protect them. Surely, our nation is engaged in the greatest undertaking of all time.

Part III—The Achievement

In spite of the difficulties, the results achieved are already the wonder of the age. National defense began in July 1940. During the following nine months our government called upon industry for nine billion dollars of defense equipment. Today over ten billion dollars of equipment has been delivered, an amount more than was on order seven months ago. It is said that Hitler accomplished less in his first five years of preparation than America in these few months. In two years' time we will truly become the arsenal of democracy. Eighteen months ago skeptics laughed at the President's demand for 50,000 airplanes a year. Today we are already producing at the rate of 25,000 per year and will reach the 40,000 rate by the end of 1942. Eighteen months ago we had no tanks, designs, tools, or materials for tank manufacture. Today 1,000 a month roll from our factories. Within a year this will reach 3,000 a month. The tank

arsenal in Detroit should fill every American with pride—a cornfield ten months ago, now a modern factory with every device known to the production engineer for turning out several hundred thirty-ton monsters per month. Eighteen months ago a peaceful America had less than two weeks' supply of powder. Today an abundance is on hand, and shell-loading plants are distributed throughout the country. You are all familiar with the progress in the building of naval and merchant ships. The new technique of welding accelerates the rate of production and increases the useful load ten per cent—a wonderful example of progress in the electrical field. In spite of all the delays and difficulties in arranging government contracts and defense financing, so much criticized, plant expansion and new plants appear in every state of the Union and will soon be pouring out war products in enormous volume.

The human side of this great effort is perhaps the most interesting. Tremendous burdens are put on production and technical management. Good management requires judgment, developed through years of experience. Experience is not gained quickly. The ranks of management cannot be expanded as fast as industry. Therefore, existing staff management is spread far too thin. Truly, the production and technical managers of industry are the unsung heroes of this national defense effort.

At the beginning of the program it was thought that the lack of skilled men would be the bottleneck. Except in tool making, this has not proved to be so, and industry can report to America a situation far more satisfactory than originally expected in the matter of man power. Thanks to the wonders of modern machine tools a school boy with four months' learner training proves as efficient a worker at specialized operations as the older mechanic with four years of training. All industries are establishing learner schools in which workmen are upgraded and prepared for special operations in about four months' training time. By this process some companies have successfully raised employment from a few thousand to 50,000 men without confusion or delay.

With the apprentice and learner schools have come highly developed personnel departments, bringing a new conception to the relationship between the worker and his job. Health, recreation, training and upgrading are given careful attention.

In the development of these personnel departments and the apprentice and learner schools, America is pioneering and is learning a new technique which will be retained and developed in the post-war period. It will contribute much to the future progress of American industry.

Anyone studying the first eighteen months' record of defense effort can have no doubt that American industry will see the job through. When this war is over and history is written, American industrial management will stand on its record of patriotism and achievement.

Part IV—Unnecessary Uncertainties

Marvelous as this achievement of industry has been, it should have been greater and could have been greater. We have said that mass production can succeed only with greatest difficulty in the face of uncertainties. We discussed four uncertainties which are caused by the very nature of the war itself. No review of this subject, however brief, can be complete without mention of other great uncertainties which delay, hinder and defeat the purposes of our national defense—uncertainties which seem to industry wholly needless. These uncertainties are caused by government itself.

Uncertainty in our tax policy greatly handicaps industry. The delay, confusion and constant change in our tax laws are a serious hindrance. Mass production industries, whose very existence depends on long-time planning, are not sure today of the amount of last January's tax. Tax uncertainty is as destructive as the tax itself. An equally serious hindrance to our defense effort is the confiscatory tax on undistributed profits which destroys capital gain, drains off working capital, prevents proper expansion of defense industry, and keeps business constantly in debt. Industry willingly assumes heavy taxes to pay for national defense, but give us a fixed tax law so that we can know what our taxes are. Give us a tax policy planned to aid, not hinder, war output and we will get on with the job of arming America.

Another uncertainty is the threat of inflation. Inflation is completely disastrous to the success of any industrial effort. Industry commits itself today for payment tomorrow. Yet nobody knows today what the future value of our dollar will be.

Government controls supersede natural economic laws. We hear much warning from high places against the danger of inflation, yet our government's own policies raise the price of food and wages—the two most important elements of the inflation spiral. What is our policy on prices? Is it to double them or triple them? Give us a firm, consistent government policy of inflation control and make possible the forward planning that is so necessary to successful industry, and we will get on with the job of national defense.

By far the greatest uncertainty, which hinders and often completely stops the wheels of production, is the complete confusion in the field of labor relations. Our breakdown in labor relations has cost us millions of man-hours of lost time. It has lowered the over-all efficiency of industry to eighty per cent of normal, thus sabotaging one fifth of our possible output. It has transferred a vast army of men from the productive machines of industry to the ranks of labor organizations to serve as organizers, stewards, bulletin distributors, professional pickets, and so-called labor leaders. It has made of industry generally a battleground of conflicting selfish purposes rather than a field of coöperative effort.

Until recent years, labor relations were a local matter between men and management. Under this arrangement the great American industry, now the bulwark of our national defense, grew and prospered and produced undreamed of wealth—the basis of the world's highest standard of living. Today government has assumed complete control of labor relations under the false premise that industry is a battleground of conflicting interests instead of a field of coöperative effort. All important decisions are made by agents, commissions, or committees of government. Inconsistent labor policies or complete lack of policies, great delays, unfair interpretations of law, and months of one-sided investigations have brought complete confusion and misunderstanding. The objectives of social reform take precedence over national defense. The Army and Navy wait in the lobby, while government investigators occupy the time of industry. Confidence in the honesty of industry is undermined. Integrity of management is questioned. Though lip service is given to the great American right of free speech, this right has been taken away from industrial management.

If American management speaks, it is declared a law violator and its bargaining illegal. Government rulings often transfer responsibility for the continuous operation of our production lines from management to labor organization leaders who will not assume this responsibility. Consequently, no one is responsible. An atmosphere of tension and strain exists throughout industry. In this atmosphere American management and men cannot attain that degree of coöperation so necessary to successful production.

To understand this problem let us consider the American workman. He is a good citizen. He is quite sure he loves his country. He considers himself loyal and hard-working. He is willing to make any patriotic sacrifice. He has, however, two outstanding American traits which often are his undoing. He is far too susceptible to any emotional appeal. He is apt to fall in behind any parade which passes by without questioning whether its leadership is good or bad. He is a "joiner". And he likes a gamble. Though he knows the slot machine is stacked against him four to one, he thinks he is the smart guy who will get the jackpot. The other fellow is the sucker. In the same gambling spirit he is apt to climb on any band wagon if he thinks it will profit him personally, even though he may suspect that the band wagon is in the hands of an unscrupulous leader. Maybe he will win a jackpot, and anyway he can jump off before he gets burned. These two traits of the loyal workman are distinctly American traits.

Because of these traits, the American worker can lead the world in productive effort, or can pull back selfishly on the traces with equal vigor, all largely depending upon the quality of leadership.

As never before, the American workman needs good leadership—patriotic, unselfish, honest, farseeing leadership. Today we have far too little good leadership and far too much bad. Management, the partner in industrial coöperative effort, no longer can influence choice of leadership. Too often, government supports the wrong leader.

Our workman once believed this the land of opportunity. Pay and promotion were a reward for merit. Now he is told to slow down to an average, that seniority and security are what he wants. Once he took pride in the size and success of his

corporation. Now he is filled with doubts about his company's honesty, and is he not told that bigness is bad in itself? Once he respected his boss—in fact, he was a hero worshiper. Now his leaders spread doubt about the integrity of his manager. He hears that his country is in danger, but he doubts the seriousness of this danger. For eight years he has lived in an atmosphere of emergencies, and he suspects this is just another one. He agrees that strikes against national defense are unwise, but he doubts whether they are half as serious as made out to be. Something should be done about it, but it does not concern him—it is some other fellow they are talking about. He is ready to die for his country if need be, but he is quite sure the danger is exaggerated. Why should he miss an opportunity to get his while the getting is good? Was he not told that no social reform would be sacrificed? To him, social reforms mean more money for less work.

He hears much about the danger of inflation. He fears a rise in the cost of living, but he suspects that it is all being staged and it is his tip-off to get his share now. From his labor leaders he hears too little about his responsibilities as a citizen and his patriotic obligation to do a day's work to arm America —too little of the blessing of Americanism and the wonders of our free enterprise system. He is constantly told that he has been abused and cheated by an unfair division of national income; that it is a land of injustice and another's success is at his expense. He is told that he will lose his bargaining rights unless he joins some great union and then strikes to show his power. If he wants to go it alone as a free American, seeking opportunity and reward for extra effort, he is called a stooge, a sissy, and a Mickey Mouse. By jurisdictional quarrels, organizing drives, and needless doubts, his labor leaders keep him in a state of emotional excitement.

This state of bewilderment and confusion is fostered and thrives under a system of government controlled labor relations utterly lacking in any clearly defined policy and controlled by agents and commissions which often support labor organizations rather than labor; tear down independent bargaining groups; impose one-sided, inconsistent rules and regulations; regulate, control, indict and punish management; prevent industry from

purging itself of subversive workers and unpatriotic leaders; destroy contracts; and even nullify the right of free speech.

To cut this Gordian knot which ties the hands of industry, we must have a courageous, clear-cut statement to American workers by the President of the United States, and the establishment of clearly defined labor policies by our government. In all this confusion and bewilderment our American workman is still capable of great patriotic effort. He trusts his President. He wants to know what his President wants him to do. He does not want meaningless generalities. In specific and simple language our President should talk to him, calling on him to help management restore a merit system; condemning the organized labor policy of slow-down to the average; asking that pride in product and in company success and respect for the boss be restored; demanding honest, patriotic labor leadership which puts duty and responsibility before all other motives. Such a statement would go far in restoring industrial efficiency to one hundred per cent. Output could be increased twenty-five per cent without an added machine or tool.

Establishment of clear-cut government labor policies will remove most of the confusion. Today, after eighteen months of this great national danger, no one knows our government's policy on the fundamental right to work. Are all men to be herded into organizations with or without their consent? What is our policy on the closed shop? Must all workmen pay for the right to work? What is the status of the independent worker? Is he to be denied his constitutional rights? What is the policy on independent bargaining groups in which over half of our workers are today enrolled? Are these to be destroyed, and only bargaining by great international unions recognized as legal? What is our wage policy? Are wages to double or triple or remain constant? What is our policy on subversive labor activities? Is industry to be denied the right of purging itself of the destructive Communists?

If government must control labor relations, let it give us fixed labor policies, fair, consistent, and clear-cut—and the confusion which breeds selfish pressure groups, strikes, stoppages and slow-down will clear away. Remove this needless uncertainty, which is the greatest obstacle to successful mass production, and industry will get on with the job of arming America.

DISCUSSION: ACHIEVEMENTS AND PROBLEMS OF INDUSTRY

CHAIRMAN MITCHELL: We are now ready for discussion from the floor, under the two-minute rule. May I ask that anyone, who wishes to join in the discussion or to ask a question, come forward, so that he can be heard, and give his name to the reporter of these proceedings for the record. The meeting is now open for discussion.

Is the Chair to conclude from your silence that the several speakers have covered their subjects so completely as to leave no question unanswered?

MISS CECILIA BLATT (New York City): I would like to ask Mr. Guggenheim what his opinion is with reference to our failure to unify our various air forces. Is it the prestige and petty jealousies of the two Services that are holding us back in the face of all the evidence that seems to point to a different policy?

MR. GUGGENHEIM: I do not think it is merely prestige. I think it is tradition and fear of departing in an emergency from a course that has been pursued over a great many generations. When people have power, they do not usually like to give up any of it. That does not imply any petty, selfish motive, but I think that it is a general trait from which we all suffer.

In answer to the first part of your question, I believe that eventually we shall have a supreme command and a council of national defense so that there will be some ultimate military authority between the various armed forces and the President. The President is now our supreme commander-in-chief, but he obviously is unable to be in the field and also to be in the staff office and carry on one or two other jobs that he has to do. I think, eventually, however, that our military and naval and air organizations will be under some supreme commander and a council of national defense. But in the meantime, until we reach that point, I think that we must have an independent air authority. I think that will be one step in the direction of an eventual council of national defense, with a supreme command.

CHAIRMAN MITCHELL: Thank you, Mr. Guggenheim! Are there any other suggestions or questions?

DR. SANPATIAN: I have just heard from Mr. Crawford that the machine-tool industry in 1917 in the United States achieved a perfection of a thousandth of an inch. How can he explain the statement made by General Pershing in his *Memoirs* that he did not use any shells made in this country, and that he had to buy them from England because those from this country were imperfect?

MR. CRAWFORD: The British had been using our shells for two years before we got into the war; perhaps our guns were not made right. The British guns seemed to shoot them. I do not know any other answer.

I was trying to make the point that a skilled man had great difficulty to attain any such accuracy in 1917, as the unskilled worker, with four months of training, can achieve today. It can be done now because the machine is such an improved and wonderful thing. I wish that you might see the thread-grinder work. If you put a blank in it and shut the door and tell the man to go away and not go near it, and press some buttons, when he comes back, the red flag is up and the door is open, the machine is stopped and there is a perfect piece in there. During the time that the cover has been down, a grinding wheel has done the work; a little diamond has come up and trued the wheel and backed off, and all the things that formerly had to be done by hand have been done mechanically. That is the point I was trying to make—to illustrate the progress in machine tools.

We adapted the thread-grinder the other day to do seven operations that formerly took an hour and a half. We do them now in two minutes, all at once, with more precision, with the worker going away and letting the machine do the work. I wanted to make the point that that fact is more important to America's national defense than a million men under arms. I do not know any other way to answer the question.

CHAIRMAN MITCHELL: Are there other questions or suggestions?

MR. JOHN A. ZVETINA (Loyola University, Chicago, Ill.): I should like to ask one of the speakers about this problem of mass production. We have heard a great deal about our capacity for mass production, but I am wondering, do we also have the organizing capacity that the Germans have to distribute properly all of this mass production when it will be essential for use?

CHAIRMAN MITCHELL: I think that I might call on all four of the gentlemen to answer that. Let me make Mr. Scoville the first victim.

Mr. Scoville: I suppose that we shall have transportation facilities and be able to transport these weapons to the point where we are going to use them. I do not know why we should not be able to do that.

Chairman Mitchell: And train the men to use them?

Mr. Scoville: I am not an Army man. That is the Army's job, when the machine is made, to put it into use.

Chairman Mitchell: Mr. Guggenheim has perhaps had a better chance to watch the coördination of the efforts to make things and to train people to use them. Have you a contribution to make here, Mr. Guggenheim?

Mr. Guggenheim: As far as our air production today is concerned, the Army and the Navy are preparing to use the types of planes that they have been asked to produce. In addition to that, we are supplying great quantities of planes to Great Britain and are beginning to send them to Russia. My personal view is that ultimately our production will be used to very much greater advantage if it is under a slightly different organization than at present.

Chairman Mitchell: Any other questions?

Mr. I. Sitt: In answer to the lady's question, as to why we do not have a single air force, I might say that Admiral Yarnell at Town Hall a few weeks ago said that the solution is to put the Army in the Marines and the Marines in the Navy and the air force comes over with the Navy; so there you have a complete consolidation. (Laughter)

The question I had in mind is this: We have a very happy combination here this morning with Mr. Scoville and Mr. Crawford and Dr. May. With the remarkable achievement we are having in industry, and with the intelligent work that the statistical departments are doing in Washington and also in industry itself, is it possible that when the war is over, we shall have a much stronger federal control of industry than we have had in the past? Or contrarywise, is it possible that we may be so fed up with control that we may want to get rid of it all?

Chairman Mitchell: You are asking a question that calls for a prophet.

Mr. Sitt: Yes, that is quite right, but I think that these gentlemen are really working along practical lines and I think that they may have some ideas.

CHAIRMAN MITCHELL: We shall be delighted to hear from them if they have.

MR. CRAWFORD: I would like to say this, that I might have suggested a fourth uncertainty that is quite unnecessary, and that makes it difficult for industry to proceed with full confidence in the future. That fourth uncertainty is the future of the free enterprise system. You asked the question: Are we going to have government regulation? I will put it in this form: Are we going to continue free enterprise?

American industry has thought a great deal about that and is very much concerned. For a hundred and fifty years, this has been the only country in the world that has had an opportunity for a free people under a free political setup, with intelligence and resources to go at the job of producing; and we promptly got to be the richest country in the world. America lifted the people of this country up out of poverty; in the rest of the world, two thirds of the people are ill-clad and ill-housed and ill-fed. By free enterprise, we have got two thirds of our people up and we are on the way to getting the last third up.

We do worry about the future of free enterprise. It is an uncertainty; it makes it very difficult to keep up morale. Today, we hear a great deal about a modified free enterprise; we hear a great deal about a managed economy; we hear a great deal about the end of this freedom to produce and the right to enjoy the fruits of production without confiscatory taxes taking it all away from our people.

Industry wonders whether this great national effort is its funeral march. When you go to your own funeral march, you do not go with all the zest and vigor and fight that you might have if you know that you are going to preserve the thing that you are fighting for. So I say this, that the greatest danger before America today, greater than that abroad, is: What is the future of free enterprise? Are we fighting to preserve it? What does Americanism mean? Let's settle that right now and then we will get the job of arming America done. (Applause)

MR. SITT: I would like to have Dr. May speak on that. I think he may have something very important to say.

DR. MAY: I do not think that I have anything very helpful to offer except this, that I cannot pose as an old employee of the government, for I am very new at that particular game; but I do not have the same impression of government, I think, that Mr. Crawford has. I do not know what we are going to have two years from now or five years from now or ten years from now, but I hope we are going to have a

set of democratic institutions and I think that we will have them if we have will enough to preserve them and to fight for them.

I think what we do in the way of more control or less control, whether we feel that we need more regimentation or whether we feel that we need less, is a function of the people of the country. I think they will decide that, and it will be their decision. I think that if you visualize government as something that is going to impose this and this and this on you, well, you have already lost your battle. I think that it is a democratic process and I think it will be decided that way. (Applause)

MR. A. D. STYLES: I would like to ask Dr. May a question. Would not the fact that Canada has imposed controls on prices and on the elements of production costs, while the United States has failed to do so, tend to increase United States purchases of Canadian goods, thereby giving Canada more United States dollars with which to buy United States goods without recourse to lend-lease, say, or credits in this country?

DR. MAY: Yes, if our prices move completely out of line with Canadian prices, certainly that will tend to promote our purchases of more Canadian goods. My own feeling, of course, is that we very definitely need price control here, that it is long overdue, and that the situation, which is one of the most dangerous situations in the world, has been getting out of hand too long. Something effective should be done about it very promptly.

DR. SANPATIAN: Mr. Chairman, the speakers this morning have mentioned the Maginot Line. Of course, I am not a technician and I do not know very much about techniques and tools and machines.

I was told that the Maginot Line was equipped with tools. No speaker has pointed out that the Maginot Line failed, not because it was imperfect, but because the French did not have the will to fight, and because they were also betrayed by their leaders. A perfect tool is useless, to my mind, if those who use it do not have the will to use it. So I do not know if the Maginot Line was a perfect or an imperfect tool. I feel that the French never had the will to fight, that they were betrayed by their generals and by the politicians. So we have not proved today that the Maginot Line was an imperfect tool.

CHAIRMAN MITCHELL: We have not proved that today, of course, but I think it is fair to say that that is a bit outside of the range of the subject which we have been discussing. However, I see that Mr. Crawford has a comment he would like to make.

MR. CRAWFORD: I would like to make just one comment, that the Maginot Line was probably one of the reasons why France did not have the will to fight.

I was in France each year before the outbreak of the war. I was there in 1938 and operated a plant outside of Paris, and had all the fun of trying to get some production while my workers experimented with the French abundant life and social reform of fifty hours' pay for a thirty-hour week and all the other things that they learned from us. They always said to me: "Oh, we have the Maginot Line! We don't need to fight! We don't have to work forty hours! We're safe!" The Maginot Line became to me a symbol of the crumbling of France. Today America says, "We have three thousand miles of water", or we have a lot of this or a lot of that. Anything that gives you a sense of security undermines your will to do; so I attribute half of the French failure to their Maginot Line. (Applause)

MISS EVELYN MARCUS (New York City): May I ask Mr. Crawford if he is willing to carry into every field his observation that a sense of security undermines the will to do? If industry had a sense of security from the taxes that he feels are confiscatory, from labor troubles, would that security of industry undermine its will to do? (Laughter)

MR. CRAWFORD: I think that is a very good question! (Laughter) As an operator of an industry I do not feel right now that there is any danger of our losing our will to do, because if bucking obstacles gives you the will to do, we certainly should have a lot of it! (Laughter)

I tried to make it clear, and I am afraid that I did not, that I wanted to speak for industry and from this premise. Industry has its axe to grind; but we are told that there is a great danger in America and a great national defense program. Therefore, industry has pretty generally taken this position: "Never mind the axes, we will bury them; we have a job to do in America. It may ruin you, it may ruin us, but let's get on with that job. We will put all the quarrels, all the theories and all the other things off until afterward."

Industry says to you: "If the job is to produce the things of warfare, give us all the help you can and remove the obstacles and let us get at the job!" And we say that, knowing that perhaps we are moving in our own funeral procession. I wanted that to be the spirit of my talk. There are several uncertainties in the nature of the war that we cannot do anything about. There are other uncertainties that we can do something about; and we ask the American people, through

their government, to remove from us during this period the uncertainties that make this such a tough job. You can do it through your government. That was the spirit of my talk.

I think you've got something, though, in your question. (Laughter) I think that the trouble with America is that we have gotten so comfortable and rich that our will to do has been weakened. I get some comfort from a philosophy that seems to be an American one, that success breeds failure and collapse. We rather laugh in America when we say that it is three generations from shirt sleeves to shirt sleeves. Perhaps God had a sense of humor and felt that this whole thing ought to be plowed under every so often to keep us healthy, so He tied will and self-reliance and strength of character to hardship. That is just a philosophy that I have. The farm boy bucking hardships becomes the great American, rewarded with wealth, and his grandson isn't worth a damn. (Laughter) Perhaps that is true for the nation, perhaps that is true for the American people.

You have something pretty important there! (Laughter and applause)

Chairman Mitchell: There is time for just one more question and answer before we adjourn for luncheon. If nobody has a question, I shall thank the four speakers of the morning for the contributions they have made, and call your attention to the fact that the afternoon session opens at 2:15 P. M., and declare this session adjourned.

PART II

PRICES, WAGES AND THE GOVERNMENT

INTRODUCTION *

SHEPARD MORGAN, *Presiding*
Vice-President, Chase National Bank of the City of New York
Trustee of The Academy of Political Science

THE main topic for the several sessions of the Annual Meeting of the Academy is " American Industry in a War of Machines ". One would suppose offhand that of all forms of war in which the United States might be presumed to excel, it would be in a war of machines. Americans are born with a natural aptitude for machines, and supplementing that aptitude is the fact that by and large the United States is forty to fifty per cent of the economic world. So our national skills are backed up by the national power to produce.

This afternoon, we are going to talk about " Prices, Wages and the Government ". I confess that I find the topic itself the remarkable thing of the afternoon. If we were in another continent, could a group like this get together and discuss, with some hope of mending conditions, such topics as prices, wages and government? It is unthinkable. It is part of the democratic process, is it not, that we have the right to gather miscellaneously, just because we are interested, and discuss topics which in a totalitarian state are supposed to be determined by those on top, irrespective of whether they are the best qualified in the nation to deal with such topics. Yet, here in New York, we meet to discuss prices and wages and, it may well be, to criticize. Perhaps if the entire list of speakers were here, we might have something else to criticize, in the way of labor relations.

* Opening remarks at the Third Session of the Annual Meeting.

At this point, by way of preliminary to introducing the speakers, I have to give you one word of regret. Mr. Cyrus Ching, who is a member of the Mediation Board in Washington, is unfortunately not able to be here. According to the morning papers, the Mediation Board has recently been busy, and Mr. Ching may still be engaged in trying to prevent a stoppage in the flow of coal to the steel mills.

Our first speaker this afternoon is known well to the Academy, just as he has been well known individually and personally to many of us. Leo Wolman is Professor of Economics, specializing in questions of labor, at Columbia University. He is also one of the leading research economists of the National Bureau of Economic Research, which has published some of his valuable productions. I take great pleasure in introducing Professor Wolman, who will speak on " Wages and Wage Policy ".

WAGES AND WAGE POLICY

LEO WOLMAN
Professor of Economics, Columbia University
Trustee of The Academy of Political Science

WE may expect always to face difficult questions of wage policy. At all times and under all conditions a democratic society must consider the means of ensuring the most equitable distribution of the national income and the maintenance of aggregate income at the highest possible level. In the decade of the 1930's the central issue of wage policy became that of achieving a wage level and structure that would halt the rise in our unemployment rate and produce again a condition approximating "full employment". Now that the volume of employment has exceeded all past records by very substantial amounts, the problem of wage policy has assumed still another form. The immediate and pressing question about wages is the part they have played and may be expected to play in contributing to a considerable, persistent and cumulative advance in wholesale and retail prices, and in the cost of living.

The objectives of public policy in relation to a price movement of this type are quite clear and familiar. Certainly all professional, and most lay, opinion would join in supporting effective measures for preventing prices from getting out of control and doubling in the next several years, as they did during the last war. However much some special interests might profit, most people would agree that the public interest, and with it the interest of labor and industry, would suffer severely from such a development. If there is this virtual unanimity concerning the objectives of a price policy, what difference of opinion, if any, can there be about the need of controlling the price of labor, or wages?

The record of wage changes in American industry is now so much more complete than it has ever been before that there can be little room for difference of opinion as to the facts of recent

wage movements. Broadly speaking, wages have so far observed a traditional pattern. Increases started slowly and hesitantly in 1940. As defense production expanded and its potentialities became more apparent, wage advances became more general and more substantial. By the spring of 1941 the rate adjustments of individuals or groups of employees had been converted into plant and company-wide adjustments, and, at last, into industry-wide raises. There were the usual leads and lags. But shortly one industry followed close upon another. Term contracts between employers and labor unions proved an ineffective bar to wage changes. In manufacturing, this phase of the movement apparently reached its peak in May or June, and both the extent and amount of wage increases slackened perceptibly during July and August. But preliminary figures for September show that the tide had again turned and raises had again become more numerous and larger.

Custom and inertia, the machinery of wage-fixing and collective bargaining, and business conditions occasionally cause wage movements in some industries to lag behind. But in time the desire to share in wage advances becomes contagious, and the pressure to put up rates, irresistible. Thus a rising wage level spreads from booming defense industries to less busy non-defense industries; from wage-earners to clerical employees; from factories to trade and service occupations; and finally to industries, like railroads and public utilities, where it was only recently assumed that wages, like prices, were substantially fixed. Once such a movement gathers momentum, it requires little more than twelve months for the epidemic to touch the major sectors of our industry.

Translated into statistical averages, which for most industries are available only through August 1941, the aggregate rise in wages has already been striking. Manufacturing hourly earnings increased more than 15 per cent from August 1939 to August 1941. Hourly earnings of bituminous coal miners were raised 16 per cent in the same period. The wage award of the Railroad Fact-Finding Board was not made public until November 5. But the increases recommended in its report are made effective as of September 1 of this year. They amount to roughly 12.5 per cent, but if the threat of the operating brother-

hoods proves effective the average increase might rise materially above this figure. As wages are now moving, it is fair to infer that the hourly earnings of factory labor will stand at the close of 1941 some 20 per cent above their amount at the beginning of the Second World War.

These increases, moreover, are not restricted to defense industries, although they have been larger in these than in the nondefense industries. In a selected group of ten defense industries, the average increase in hourly earnings from August 1940 to August 1941 varied from 12.5 per cent in machine tools to 22 per cent in shipbuilding. In such consumer-goods' industries as cotton goods, hats and shoes, increases during the same period ran from 11.7 per cent in woolen and worsted goods to 14.8 per cent in cotton goods. It is true that part of these increases of wages measures the effect of punitive overtime rates. But if allowance were made for this factor, increases in the rates of wages would remain the preponderant influence in current wage advances.

The forces that account for the behavior of American wages during the last twelve months do not appear to have run their course. The most potent of these—the power and policy of organized labor—may be counted on to push wages to still higher levels. Trade unionism in this country is daily extending the ranks of its membership. As it moves into new plants and industries, its first effort is to win substantial gains in wages, both as a means of persuading men that it is in their interest to join a union and to establish the organization's power and prestige. The existence of two large and powerful federations of labor—the A. F. of L. and the C. I. O.—competing vigorously for membership and position leads first one and then the other to bid up the going rates of pay. It would be difficult enough to exercise restraint upon the demands of a single federation, but so long as the present condition continues only a firm and generally accepted public policy could possibly surmount the difficulties created by the competitive pressure of two warring factions in the labor movement.

Demands for wage increases, also, originate in arguments and conditions that appeal to the rank and file of labor. The existence of a general boom in business featured by shortages

of labor soon produces a universal demand that employees share in the country's prosperity. Mounting business profits add to the effectiveness of this demand. Official spokesmen for organized labor make the case for wage advances even more plausible by alleging that the rising productivity and efficiency of industry absorb all or the greater part of increased wages and, hence, that higher wages do not raise either costs or prices. Thus the August bulletin of the American Federation of Labor, *Labor's Monthly Survey,* states:

> The American public has a very false impression about the ability of American industry to raise wages. Manufacturers often claim that if wages rise prices must rise also. This claim ignores two basic developments which make it not only possible but essential for industry to maintain a steadily rising wage level: (1) Workers' increasing productivity which steadily reduces unit labor costs; (2) Expanding industrial production which reduces unit overhead costs.

But the most persuasive argument for radical wage adjustments under prevailing American conditions is to be found in our wage structure. The most striking feature of the American wage structure is the persistence of wide wage differentials as between industries, regions and occupations. These differentials will vary by more than 50 cents an hour. If anything they have been widened as a result of the wage movement of the last year. At a time when demands for wage increases dominate the labor situation, they are the most effective lever for pushing up the level of wages. It was the existence of wide differentials of this sort which caused the nonoperating unions of railroad employees to demand increases of 30 and 40 cents an hour, aimed to lift minimum wages for common labor from 30 and 40 to 70 cents an hour. The same process has been at work in the aircraft industry since the beginning of its current expansion; and a considerable part of the wage increase won earlier this year by the soft coal miners is attributable to the elimination of the established North-South wage differential in the bituminous coal industry. Whatever may be said as to soundness of the policy of a general reduction of these differentials, the fact remains that they have recently served, and will probably continue in the next years to serve, as the most fertile source of continuous wage increases.

Of almost equal importance is the part played in current wage movements by the cost of living. The earliest wage increases of the defense period had no reference to living costs. In fact measures of the cost of living showed such stability that many advocates of high wages pictured a situation featured by effective control over the prices of commodities and services accompanied by rising money and real wages. But since February of this year the cost of living has steadily risen. Of the increase of 10 per cent in living costs that occurred between August 1939 and September 1941, 7 per cent may be credited to the seven months since February. Preliminary figures for October indicate a further rise in that month of something more than 1 per cent. Obviously these changes in the cost of living have become large enough to serve as an added reason for wage adjustments. Employees who received rate increases late in 1940 or early in 1941 are now citing mounting living costs and the decline in the purchasing power of their wages in support of demands for fresh concessions. If the present trend in the retail prices of the necessaries of life continues, as it well may, this factor may prove on this as on former occasions to be a most effective lever for securing a succession of wage increases in the months that lie ahead.

Unless they are restrained, these forces, which I have so briefly described, cannot fail to raise average wages in this country far above their present levels. And as they rise they are bound to carry prices with them. For this there are several compelling reasons. The first is that wages are an important, often a vital, element of costs and, hence, of prices. While it is true that much of the first advances in wages may be absorbed by declining overhead costs per unit of output and by more efficient operation, these sources of savings tend to exhaust themselves as an industry reaches capacity production. Also, as the production records of the last war demonstrate, a prolonged boom marked by full and overtime employment often generates costly inefficiencies in labor and management which soon raise costs and push up prices. A large proportion of American labor, moreover, is engaged in trade and commerce, a variety of services, and in agriculture. In these occupations, improvements in efficiency where they are at all possible are slow and

gradual. Rising rates of pay in these considerable sectors of our work force are, therefore, converted almost immediately and directly into increasing prices and costs of living.

Rising wages exert perhaps even a more powerful influence on prices by the effect they have on the country's purchasing power. Currently the share of the national income which goes to wages, salaries and related incomes is in excess of 70 per cent. If the national income of the country is estimated at 90 billions, more than 63 billions of the total are distributed to this class of income recipients. It is obviously a class that occupies a dominant position in the market. In the last year it has enormously increased its receipts, partly because of expanding employment and partly because of rising rates of pay. Between August 1940 and August 1941, the wage disbursements of manufacturing industries increased by 50 per cent. Additional rate increases will raise this income still further. Thus the rate increases recommended by the Railroad Board are estimated to raise the income of railroad employees by more than $260 millions a year. Even under ordinary circumstances so large and swift an expansion of income could hardly fail to produce a steep rise in the price curve. But when this expansion takes place in the face of a vast program of munitions production that taxes the country's productive facilities and forces restrictions in the output of a great variety of products, it should not be surprising that experienced observers of the economic situation should warn the country against the dangers of uncontrolled and uncontrollable price movements.

There remains a final observation on this aspect of the wages question. This has to do with the effect of rising wages on the prices the government pays for the materials it purchases. The considerations of speed which are bound to dominate the defense program will in any case produce great wastes and excessive costs. But now that public expenditures have come to exceed one billion and a half dollars a month and are due to rise still more as the requirements for materials expand, the addition of one fifth or one third to our current bill because of rising wages and prices should become a matter of genuine public concern. Whatever virtues may be conceded to the policy of generous public spending and mounting public debt in times of industrial depression, they are hardly relevant to the present

practice of spending and borrowing on a grand scale and piling up a national debt at a rate not likely to be much reduced by existing or prospective taxes.

The policy required to meet the conditions which I have just set forth must contemplate measures designed to withdraw a portion of this expanding purchasing power from current use and prevent it from rising still further. No program of price control which does not provide for the regulation of wages in common with other prices can be expected to work. The problems created by the relation of increasing wages to prices cannot be dealt with by arguing that labor is not a commodity or that there are inequities in our wage structure which must be rectified before a serious effort to curb the trend of rising wages is made. If these ideas serve as the guiding principles of our price and wage policies we may safely look forward to a duplication of the experience during earlier periods of the same kind.

Some general formula of wage control would appear to be necessary for the effective control of wages and prices. But, barring that, much could be accomplished by official recognition of the issue and public admission that wages do not play the passive rôle which is so often attributed to them. Such an expression of opinion and policy would also have the additional practical effect of causing responsible and influential public agencies to refrain from encouraging and advocating further wage raises, and thus tacitly sanctioning policies in conflict with the public interest.

The direct attack on purchasing power can be accomplished only by higher taxes on wage incomes and by setting aside a substantial share of current earnings, either in the form of compulsory savings or additions to the social security reserves. But taxation of any form not accompanied by wage control can easily do more harm than good; for in the race between taxes and wage increases, it is a safe bet that wages will win.

What we now do in these directions will affect our longer future as well as the years immediately before us. We entered the present period of war expansion with a wage level already abnormally high. The more we raise it, the more difficult will be the problems of adjustment when government spending has begun to decline and industry has returned to its peace-time

schedules. Discussing wage stabilization in England before the biennial delegate conference of the Transport and General Workers Union on August 18, 1941, Ernest Bevin, Minister of Labor and National Service, said: "Some people say: 'Let prices rise and keep increasing wages.' Experience shows that wages follow prices, but a long way behind, and when you have to bring prices down at the end of a war the bitterness of the struggle and the results are hardly worth it."

Remarks by the Chairman

Chairman Morgan: Thank you, Mr. Wolman!

We have now heard of the part wages play in tending to raise the cost of living. We now turn to the question of prices of commodities and the cost of living. Professor Mills of Columbia, and also of the National Bureau of Economic Research, is going to compare for us the effect of war on prices and the cost of living as observed in two war periods; that is, the one that we knew twenty-five years ago and the one so far as we have known it up to the present. It is my pleasure to introduce Professor Mills!

PRICES AND THE COST OF LIVING IN TWO WORLD WARS

FREDERICK C. MILLS
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Member, Research Staff, National Bureau of Economic Research

THERE are grounds for a jurisdictional dispute between Mr. Wolman and me. He has carried his discussion of wages into the field of prices, and I may carry my discussion of prices into the field of wages. You, Mr. Chairman, may have to serve as arbiter.

In 1918, when our effort in the last war had reached its maximum, the physical volume of production in the United States was greater by about one quarter than in 1913. The aggregate dollar value of the goods produced in 1918 was almost two and one-half times as great as the dollar value of goods produced in 1913. The margin between these two sets of measurements —one running in physical terms, one in dollars—defines the amount by which dollar values deluded us then as to the true magnitude of our war effort on the industrial front. It indicates, as well, the proportion by which the national debt was increased by payments for which no material returns were obtained. Such a margin reflects, of course, a great advance in unit prices. This margin is a measure of inflation.

Our interest in price movements at this time derives largely from public concern with this same matter of inflation. I can deal with limited aspects only of this many-sided problem, but I shall deal with aspects that seem to me to be of strategic importance.

In 1914 the impact of war on our economy was first felt by the productive system. The war started in a period of depression. By December 1914, industrial output had begun to expand. Within fourteen months a rapid and unbroken advance

had carried the level of production to heights barely exceeded later, when our own most intense effort was made. Aggregate values and physical output kept even pace during most of this advance. So long as production was expanding rapidly, prices changed only slightly. But as the peak of production was approached, bidding by eager buyers for a limited supply skyrocketed prices. Values and physical quantities parted company.

In September 1939, business recovery had been under way for more than a year. The volume of industrial production was well above the depression low. Commodity prices, however, were stationary, or sagging, as they had been for almost two and one-half years. A great lethargy possessed the price system, which was weighted down with large reserves of basic products, unemployed men and unused industrial capacity. With the outbreak of war there was a brief initial spurt in the prices of basic commodities, but for the first twelve months of hostilities prices at large reflected in only slight degree disturbances abroad and continuing business recovery at home; for industrial production continued to expand, with but minor checks. This increase in physical output, relative to pre-war levels, has already substantially exceeded the production advances of the First World War.

The long inertia of prices was finally broken in the fall of 1940. A year after the beginning of the war, and more than two years after business recovery had begun, prices started to move. Today a steady, pervasive and cumulative rise in prices is under way. For the last half year the rate of advance has averaged two per cent a month. This rate, as an average prevailing among some 800 commodities in wholesale markets, is an impressive and disturbing figure.

The average price rise to date for all classes of goods in wholesale markets, from the level of the twelve months preceding the outbreak of war, is 20 per cent. For the corresponding period of the First World War the increase was 24 per cent. Living costs for industrial wage-earners have risen approximately 10 per cent. The corresponding rise in 1914-16 was in the neighborhood of 12 to 14 per cent. So far, we lag behind the record of the earlier war. But the pervasiveness of the present advance, and certain accompanying conditions, preclude the finding of satisfaction in that lag.

The recent price rise has been greatest in areas from which generative impulses may be expected to flow, pushing other prices upward. The raw materials of industry have risen 30 per cent; manufactured goods have advanced 17 per cent. This sharper rise in raw material prices is found among all major classes of goods—producers', consumers'; durable, non-durable; foods, nonfoods. For primary products of farm origin the rise has been outstanding. A 51 per cent advance in prices received by farmers contrasts with a 14 per cent rise in the corresponding period from 1914 to 1916. The movement, for raw materials generally, is the more notable in that it reverses the changes of 1914-16, when such materials lagged behind fabricated goods. Raw material prices, of course, enter directly into costs. There are seeds of further price advance in the current situation.

The labor component of manufacturing costs has risen also. Average hourly wages stand today some 17 per cent above the level of the twelve months preceding September 1939. Higher payments for the services of labor and for materials may, of course, be offset by gains in industrial productivity. Technical improvements, more rapid work or a higher rate of production may serve to reduce unit costs. Gains in productivity have been made in the last two years, but they fall short of the increases in material costs and in hourly wages. If we take full account of enhanced productivity per man-hour there remains an advance of about 9 per cent in labor costs per unit of goods produced. These costs, as well as material costs, are pressing on the prices of finished goods. This pressure from the cost side represents a present and potential danger greater than that which existed at a corresponding date in 1916.

There is another aspect of rising production cost that concerns us. The great new public expenditures on defense serve to swell profits, and to increase aggregate payments for materials and labor. It is a legitimate aim of government to reclaim profit increases through excess profits taxes. By this means a portion of the new expenditures is short-circuited back into the hands of the government, without entering the market for consumers' goods. Payments for labor and most of the payments for materials are not subject to this short-circuiting.

These payments go directly to final consumers and serve, in the main, to swell the demand for consumers' goods. The mere increase in the volume of production leads, of course, to an increase in aggregate payments for labor and materials. Higher unit costs for labor and materials further augment the stream of funds flowing to final consumers. Changes in this stream, and some concurrent changes in physical production, call for attention.

On the production side the contrasts are sharp. If we take as a base of departure the situation prevailing during the twelve months prior to September 1939, we find an increase to September 1941 of some 59 per cent in the physical output of those heavy goods that are essential in production and defense. Of goods intended for use by consumers the increase amounted to 16 per cent. Since mid-summer, indeed, the output of consumers' goods has been actually declining. The production of durable consumers' goods has already been cut down by more than one fifth from its June high.

But money for the purchase of consumers' goods is still being pumped into our markets. The gross income of farmers in 1941 will be approximately 33 per cent higher than in 1938. The corresponding rise from 1913 to 1916 was 22 per cent. Monthly payroll disbursements in manufacturing industries are today some 90 per cent above the average level of the twelve months from September 1938 to August 1939. Per capita earnings of employees in manufacturing industries have gone up 33 per cent. The complete record, for all groups, is given by national income figures. Aggregate payments to individual income recipients in 1941 will be more than 35 per cent greater than in 1938. The corresponding rise from 1913 to 1916 was 18 per cent.

We may get a clearer picture of this if we take account of changes in actual dollars. Here I compare the current year with 1939. In 1941 individual income recipients will receive some 20 billions of dollars more than they did in 1939. But their purchasing power in dollars has been augmented still further by a marked increase in consumer credit outstanding. Between June 30, 1939 and June 30, 1941 this increase, for certain of the major consumer credit agencies, amounted to two

billion one hundred million dollars. In 1941, additions to consumer buying power from this source will exceed such additions in 1939 by more than half a billion dollars.

Against these forces are others working to reduce the stream of money available for the purchase of goods. Purchases of United States Savings Bonds have doubtless lessened somewhat the volume of spending on consumption goods, but the reduction has not been great. In the main, such purchases are made out of savings. It is unlikely that reductions in consumer spending in 1941, due to the purchase of savings bonds, have done more than offset the increase due to the expansion of consumer credit. More important are diversions due to rising taxes. Increased federal, state and local tax payments by individuals have taken perhaps two billions of the estimated increase in 1941 income receipts over those of 1939. In round figures, then, we may estimate that the funds available in the calendar year 1941 for the purchase of goods will exceed those available in 1939 by 18 billion dollars.

Rising incomes for all groups of consumers are, of course, altogether desirable, when there are available commensurate quantities of goods and services on which these incomes may be spent. Then money income may be turned into real income. But additions to incomes that may not be exchanged for goods lead to just that divergence of aggregate values and physical quantities that is inflation.

This survey of goods and of money incomes suggests a clear conclusion. We have arranged for and are effecting a major diversion of our productive energies. We have increased and will still further increase the output of equipment and munitions of war, and instruments for making such equipment and munitions. We are reducing the portion of our productive resources devoted to the output of goods for domestic consumption. On the physical side the program has been laid down, and is being carried out. We have taken no adequate corresponding steps to keep money incomes in balance with available goods. The funds flowing to consumers are swelling rapidly, just when the supplies for which they will be offered are being curtailed. There can be no physical counterpart of the substantial additions to the stream of funds now flowing to consumers. Here,

more immediately than in any other economic area, is the dynamite that now threatens the price system.

In a certain impersonal way, we all know that defense production means curtailment of goods for consumers. But the full implications of this fact have not been brought home to us. The diversion of economic resources to the present war effort will far exceed the diversion that was needed in 1917 and 1918. This is mechanized war, and our major job is that of producing instruments of war in immense quantities. Production for other uses must decline.

The effects of combined pressures from the side of consumer buying and from sharp advances in primary farm prices are clearly manifest in the price record. Up to September 1941, the prices at wholesale of goods ready for consumption had risen some 20 per cent. More disturbing are the advances at an earlier stage of the productive process. Goods intended for human consumption but not yet finally processed (such goods as wheat, cotton yarn, hogs) had risen 38 per cent. These advances are still to be converted into yet higher prices for final consumers. I would point to a further significant fact. Among commodity groups for which there are comparable monthly quotations for the two World Wars, there are three for which the wholesale price advances to date have exceeded those of 1913-16. These are textiles, foods and housefurnishings—commodities of most direct concern to final consumers.

The present price movement, it is clear, is being paced by primary products, and by goods intended for human consumption. Among these goods it is the necessities of life, and not the frills and trimmings, that lead the advance. In 1915-16 industrial products felt the heaviest pressures. Chemicals, metals, fabricated producers' goods led the rise. In this war the squeeze is on consumers, from the start.

How this situation may be controlled is the major economic question we face today. Action has been proposed, and immediate action is needed, on two fronts. On one front we need direct control, designed to stem a potential flood of price advances through restrictions on strategically placed elements of the price and wage system. I speak of restrictions on certain elements because I think that any method of price and wage

control must be selective, in its application to our economy. For along with specific controls administrative authorities must make use of the vast directive powers of free prices. Through these powers, and without conscious action, resources may be allocated, goods and services distributed, adaptations made to conditions that vary from market to market and from week to week. Complete administrative direction of the processes of production and distribution in an economic system as wide and as intricate as ours would call for inordinately complex controls. We have neither the knowledge nor the administrative machinery to enforce such controls. Our system must, I think, be one that permits automatic price adaptation to market conditions over wide areas, and involves positive restrictions on selected elements only.

What I have said applies to the *operation* of the system, not to its inception. How machinery of control may be set in motion most promptly and effectively is another question. Should it be selective in picking out for control elements of a price system otherwise free, or should it be selective in releasing from restriction elements otherwise held in check by blanket controls? As we stand now, it should be the latter. We should aim, I think, at blanket freezing, followed by prompt action in allowing conditional releases over wide areas not at present threatening, or of critical importance. Behind selective control of this type should lie the broadest power, power over material costs and labor costs, as well as over the prices of finished goods. Regrettably, no such grant of powers to price control authorities is immediately in prospect. The pending bill of the House Banking and Currency Committee falls tragically short of present needs. Legislation that invites special groups to exploit a national emergency, and that leaves untouched centrally placed elements of cost, stultifies a program of price control.

Even a well-conceived and honestly drawn price control measure, however, is an inadequate buckler against inflation. Such controls operate at a stage too far removed from the origins of the most powerful inflationary pressures. Action at these origins is required, along with restrictions on prices and costs. Since we cannot increase rapidly and substantially the production of consumers' goods, a reduction of the stream of in-

come flowing to consumers is required. This means, merely, that there should be a diversion of income to government corresponding to the diversion of physical resources to the output of defense equipment. To keep the income while we build ships and planes is to eat one's cake and have it. It cannot be done. Temporarily we may delude ourselves into thinking it can be done, by inflating the values of the goods we buy. If this were merely self-delusion, it would do no lasting harm. But in its present inequities and its immense burden of future dangers this is more than harmless self-delusion.

On this front, then, the task is that of reducing the stream of income flowing to individuals to a volume commensurate with the quantity of consumers' goods available at current prices. (It is the duty of government, of course, to see that this is done with full regard to human needs, and in ways that insure equality of sacrifice.) The means to this end are taxes—heavier taxes than we have yet known—and voluntary or forced loans to government. These means may not be pleasant to contemplate. The alternative is far less pleasant.

Remarks

Chairman Morgan: I hope you are all keeping in mind the thread of these discussions because I know that at the conclusion of the addresses, Dr. Mills will be glad, as I hope Mr. Hinrichs will, to reply to questions or pursue arguments within the time permitted by the Academy's rules.

I have been very much interested in Dr. Mills's address. As I did not tell you before he spoke, but as you now know, having heard him, he is one of the leading authorities on prices and the theory of prices and the facts of prices in the United States.

I now have the pleasure of introducing to you the head of the Bureau of Labor Statistics, which, as you perhaps remember, is one of the important divisions of the Department of Labor in Washington. The Bureau of Labor Statistics has been known to us as the creator of the first and principal price index of the United States. It is always quoted as the authoritative price index. I now introduce to you Mr. A. F. Hinrichs, Acting Chief of the Bureau of Labor Statistics, Department of Labor, Washington!

Mr. A. F. Hinrichs: Mr. Chairman, Ladies and Gentlemen: I am very sorry that Mr. Ching is not going to be here this afternoon to add a tailpiece to today's program, because the discussion by Mr. Crawford this morning, by Mr. Wolman and by Mr. Mills this afternoon, should be followed through in terms of the human relations implied in the topic that was assigned to Mr. Ching.

My paper fitted into that discussion by coming back to the general subject of the character of the labor supply, the prospective labor supply, this next year, with indications of the tightness of the market. Whether I shall be able, with Mr. Ching absent, to raise certain points which will join issue with the earlier papers and give continuity to the whole discussion remains to be seen. Nevertheless, I shall look at the physical problem of the job to be done in terms of the supply of labor for our essential industries in this next year.

(Mr. Hinrichs then read his prepared paper.—Ed.)

SUPPLY OF LABOR FOR ESSENTIAL INDUSTRIES

A. F. HINRICHS
Acting Commissioner, United States Bureau of Labor Statistics

SO large an amount of material is needed for the conduct of modern warfare that a major war effort requires the total mobilization of a nation's resources. Of these resources, labor is the most limited. New plants can be built and equipped, new mines and oil wells can be opened, so long as labor is available. The ultimate limiting factor, as we saw first in the experience of Germany and later in that of Great Britain, is the total labor supply.

I

The total labor supply in the United States is adequate to meet our needs during this next year, and probably to meet our needs on into 1943. We are, however, already experiencing serious shortages of labor in particular industries and in some areas of the country. Our problem for this next year, therefore, consists in translating an adequate potential labor supply into an immediately effective supply of workers—effective both with respect to the geographical proximity of workers and work, and with respect to required skills.

It is a mistake to think of the labor supply as an absolute and fixed quantity. We cannot even assume that the ultimate labor supply bears any fixed relationship to total population. The elasticity of the total labor force is best exemplified by the seasonal changes that are currently measured by the W. P. A. monthly survey of the labor force. This year the total number of people in the labor market increased from 52,400,000 in March to 56,000,000 in July.

From year to year, also, there are forces that affect the number of people in the labor market. At the present time some 53½ million people are available. In 1918 a slightly higher proportion of the population was in the labor market. If that

proportion were available now, approximately 60 million people would be available for work. The age at which people enter and leave the labor market is controlled in part by custom. At present we can substantially increase the total number of people available for employment by postponing the age of retirement, by recalling to the labor market individuals who have retired, and by drawing workers into the labor market at a slightly earlier age. The number of women available for employment can be substantially increased by the application of economic incentives and social pressures.

Though the total labor supply shows substantial elasticity, we cannot close our eyes to the fact that there comes a point at which man power is controlling. Great Britain has reached the point where additional workers on munitions must be found by taking them away from nonessential employments. Canada is reaching this condition. We shall eventually face such a situation in the United States. It is more or less an accident that we started our defense effort with so large a volume of unemployment that we have not had to concern ourselves as yet with the problem of raw man power.

While we have enough human beings available for work to meet the demands of this next year, we must distinguish sharply between the adequacy of the potential and of the actual labor force. Certain skills can be acquired only after years of training, other skills with brief periods of training. But until these skills are acquired, production cannot be expanded. Since early in 1940 we have experienced shortages of labor which have operated to limit the rate of industrial expansion. We can no longer count upon the reservoir of unemployed workers to furnish men and women already trained for work in defense plants. By and large, further increases in the production of defense materials will depend upon the rate at which we are able to train workers.

Here, also, it is essential that we recognize the dynamic character of both the labor supply and the labor demand. The supply of workers has been substantially increased through the development of training programs and will be very much further expanded in the years ahead. At the same time energetic managements are able partially to readjust their demand

for labor to the available labor supply. It is possible under conditions of volume production to break down the highly skilled jobs into their constituent parts. When this is done, the skilled craftsman is used chiefly in a supervisory capacity, or else in performing operations which under handicraft conditions of production require only a small proportion of his time. The bulk of his normal operations are performed by specialists who can be taught in a relatively short time the particular skills which are needed. After jobs have been analyzed and broken down into their constituent parts, it is possible to expand production rapidly through the process of upgrading.

We have been slow to recognize the magnitude of the problem of labor supply. The attitude both of the public and of employers has so far been a function of the immediate circumstances affecting labor supply and has changed only as these circumstances change. We must learn to anticipate. When the war broke out in September 1939 there were about 35½ million workers employed outside of agriculture. This was about one million less than the average number which had been employed in 1929 and was also about a million less than had been employed at the peak of employment in 1937. In 1939 in the United States we were still recovering from the sharp recession of business in 1938. Manufacturing employment in the summer of 1939 was at about the same level as it had been in the summer of 1936. In almost every line a smaller number of workers were employed than had been employed at the 1937 peak. With so many unemployed, employers could recruit all the workers they wanted at the gates. Under these conditions they were not interested in training, nor particularly concerned with the possibility of future shortages. Today the attitude of many employers has changed, but it is still true in many cases that the immediate outlook is accepted as a picture of the future as well.

In the summer of 1939 few industries employed as many workers as they had in 1937. In two industries, however, shipbuilding and aircraft, employment early in 1939 exceeded the level reached in 1937. To those who were charged with a long view of the problems of these industries it appeared probable that they would encounter serious labor shortages in the near

future. Thus, an interdepartmental committee of the federal government urged the development of apprenticeship in the aircraft industry at that time. The airplane companies, however, were able to recruit even skilled craftsmen from the general reservoir of the unemployed. With few excptions they could foresee no problem. It was not until many months later that the airplane companies undertook a general expansion of apprentice training.

Later in 1939 a few other industries joined the ranks of those with record-breaking levels of employment. This was the case of the machine-tool industry by the fall of 1939. By the winter of 1940 employment in many of the industries manufacturing iron and steel products and in machine shops also had equaled the 1937 peak. But such important industries as blast furnaces and steel mills, automobiles, railroad equipment and agricultural machinery were still experiencing employment levels below those of 1937. Until well in 1940, therefore, most industries could find all the skilled workers they needed either by rehiring workers who had worked in those same industries in 1937 or by hiring workers with closely related industrial experience. It was not until the spring of this year 1941 that there was a widespread recognition of the magnitude of the training problem in industries on our second line of defense.

By the late spring of 1940 complaints began to be received from a number of metal-working centers that there was a general shortage of skilled workers. Just as manufacturers had been unable in 1939 to see beyond their immediate circumstances, so in 1940 they tended to hasty overgeneralization as to the extent of the labor shortage on the basis of their changed situation. When their problem was examined in the field, it was found that the shortages were confined to a limited number of skilled occupations and were local in character. Even at the end of 1940 the United States Employment Service reported a good many thousands of workers available for machine-tool occupations in the Middle Atlantic and East North Central states, while only about one thousand were registered in four New England states employing large numbers of machine-tool workers.

The difficulties which machine-tool companies and airplane engine companies were experiencing, however, clearly forecast more widely spread shortages. By the spring of 1940 a number of committees had been established to consider the problem of labor supply, supplementing the work of the Federal Committee on Apprenticeship of the United States Department of Labor. When the National Defense Advisory Commission was set up, Mr. Hillman was at once assigned responsibility for assuring an adequate labor supply.

While the problem was recognized by some people, neither employers nor workers generally foresaw the extent of the problem which was emerging. The size of the appropriations at that time made it perfectly clear that there would be a concentrated demand for labor which would be extremely difficult to meet. But manufacturers thought in terms of contracts placed and workers thought in terms of persons unemployed in 1940. The first estimates of potential labor requirements for the defense program that were made by the Bureau of Labor Statistics were therefore designed chiefly to show the magnitude of the task ahead of us. By and large, approximately one man-year of labor is required for every $2,000 of appropriations. Such an estimate is too crude to be useful at the present time, but at that time it did indicate clearly that we faced a major training program.

It was in fact only a matter of a few months before there were nation-wide shortages in a few occupations. By January 1941, the United States Employment Service listed 69 occupations in which the existing and immediately anticipated demand for workers exceeded the total prospective supply. By May, shortages had developed in a total of 126 occupations that are essential to our defense effort. In January most of the shortages were concentrated in skilled occupations with but 12 semi-skilled occupations among those listed. By May, shortages were reported in 36 semi-skilled occupations, among them assemblers and riveters of aircraft, assemblers and coil winders for electrical equipment, forge workers and machine operators in machine shops.

In the past year employment has increased at an almost unprecedented rate. There are about four million more people

employed in nonagricultural employments now than at the beginning of the defense program. Total nonagricultural employment has long since surpassed the peak levels of 1937. Furthermore, the development of employment has been relatively concentrated. Large increases were first experienced in the shipbuilding, aircraft and machine building centers. Even at the present time, we find that there has been a far more rapid development of employment in the New England states, for example, than in the states west of the Mississippi River. Under these conditions, it was inevitable that general labor shortages should begin to develop in some localities. San Diego was one of the first areas to experience such a shortage. In Connecticut employment increased from April 1940 to April 1941 by more than the total number of unemployed in April 1940. This increase, and further increases which have taken place since the spring of this year, have been possible only because of migration.

II

At the moment a new condition is influencing public attitudes toward our prospective employment problem. In recent months and for a number of months to come we shall hear much of priorities unemployment. The first of the industries to experience extensive unemployment of this sort was the aluminum industry. The silk industry has experienced a decline of nearly 20 per cent in employment and many of the workers who are retained are operating on short time. Orders curtailing the production of automobiles and other durable consumers' goods in order to conserve critical materials will develop further unemployment. Here and there this has transformed our immediate problem from one of labor shortage to one of unemployment. Thus whereas a few months ago Detroit faced an acute labor shortage, it now appears that defense production in that area will not expand rapidly enough to absorb immediately all of those who are laid off.

The Labor Supply Division of the Office of Production Management is tackling the problem of priorities unemployment in the communities in which it is appearing. It has achieved substantial success in effecting a transfer of workers

to defense production. Thus provision has been made for the absorption of workers laid off in the Buffalo plant of the Chevrolet Company by Curtiss-Wright and Bell Aircraft.

This problem, serious as it is, does not change the character of our more distant problem. It is local rather than national in scope. Total employment will continue to increase, and in some industries at an accelerated rate. Even the aggravated situation in Detroit will be transformed again into a problem of labor shortage when the new defense plants get into full swing in the fall of 1942.

Time and foresight are the critical elements if we are to translate our potential supply of workers into an effective immediate supply. Labor shortages so far have not significantly limited our defense effort, partly because other types of shortage made it impossible to hire more workers than were currently employed. Thus in June 1941 about one half of the defense plants that were surveyed by the Bureau of Labor Statistics reported that difficulties in securing adequate numbers of skilled workers restricted them from increasing their shift operations. Yet of these plants only one out of nine reported that a shortage of skilled workers was the only factor limiting the expansion of operations. Shortages of materials and equipment were generally cited as of greater immediate importance as a limiting factor. Even as late as the summer of this year some plants reported no need for further expansion because with their existing force they were adequately meeting delivery schedules. For reasons such as these, plants have gained a few months in which to recruit and train workers and have been able to meet their needs for labor.

Once these other defense program bottlenecks of productive capacity, materials and management are broken, the bottleneck of labor shortage will assume a new importance. It is essential, therefore, to look ahead and see what the prospective needs for labor are and what steps can be taken to meet that need. The labor supply must be made as nearly adequate as possible, with respect both to numbers and to skills.

First, as regards labor requirements: in October of this year about 4 million persons were engaged in defense employment. That is, some 4 million people were engaged in the production

of airplanes, tanks and ships or were engaged in fabricating the materials which would finally emerge in finished implements of war. By the middle of 1942 somewhat more than 6 million will be engaged in defense production. The present program calls for the employment of more than 9 million workers on defense production by the middle of 1943. Programs under discussion for an all-out defense effort would involve substantially more workers in 1943, but are not likely to increase very greatly the number of those on defense work in the first half of 1942.

It appears now that there will be a net decrease in the number of people engaged in nondefense work during the current fiscal year. This represents a reversal of the situation that existed from July 1940 to September 1941. In that period total nonagricultural employment increased about 4.6 million. Of this total about 3 million are attributable directly to defense work. From the middle of 1941 to the middle of 1942 we estimate that defense employment will increase by about 3 million and that this increase will involve the transference of about 1.25 million workers to defense work. Large numbers of these, as in the steel industry, for example, will not in fact change the character of their employment, but the products which they are engaged in making will go in larger and larger proportion to defense uses. Nondefense employment will probably increase by about three quarters of a million in fields other than the manufacture of durable goods. There is likely, therefore, to be a net decrease of about half a million in the number of workers engaged in nondefense production.

At the present time there are more than enough workers available to make possible the anticipated net increase of 2 to 2.5 million workers. There were approximately 4 million unemployed workers in October. We anticipate normal net additions to the labor force to approximately 600,000. This number may be substantially increased by delayed withdrawals from the labor market and by the entrance into the labor market of young people who have prolonged their schooling because of an absence of employment opportunities. There have already been very substantial additions to the labor force from the population group more than 55 years of age. During the last war there were substantial increases in the number of women

not normally in the labor market who were employed for the war period. Both British and German experience indicates that this is a potential source of several million workers. Finally, many hundreds of thousands of workers may be drawn into defense employment, either from agriculture or from various forms of self-employment, without seriously interfering with the functioning of our economy.

The over-all labor supply thus appears to be adequate to meet our needs until the end of 1942. Until that time at least it is improbable that we shall have to reduce civilian production as a means of securing unskilled and semi-skilled workers. I believe that the general supply of labor will be fully adequate until the middle of 1943, unless there is a great increase in the number of men in the armed forces.

It must be emphasized, however, that many of these available workers are not located in the areas in which they would appear to be needed, and that a comparatively small proportion of them possesses the particular skills which are called for. Although there are a few unemployed workers registered even in the most critical skilled occupations, it may safely be assumed that expansion in shipbuilding, aircraft, ordnance and machine tools will occur almost entirely either by virtue of training and upgrading programs or by the transference of skilled workers from nonessential employments. The Bureau of Employment Security reports an immediate shortage in September 1941 in 42 of 51 metal-machining occupations. In this number of occupations fewer workers are registered with the employment service throughout the nation than are needed for jobs that are immediately available. From this point on the expansion of defense production will depend almost entirely upon the effectiveness of our programs for the use and training of skilled workers.

At the present time the effective supply of labor is being continually increased through retraining and training programs of various kinds. Of these, I believe the apprentice training program is still the most important. It is true that the training of an apprentice requires a number of years. It must not be lost sight of, however, that the apprentice is a productive worker during his period of apprenticeship. Furthermore, the more heavily we rely upon various schemes of specialization to

reduce learning time, the more difficult the problem of management becomes. We shall have to institute more generally special short-time programs for the training of an adequate supervisory force as well as of production workers, but our problem several years from now will be made infinitely easier if there is a continuous development of apprenticeship.

In this connection I should like to call your attention to the fact that it was precisely in respect to apprentice training that the German program of mobilization seems to have been particularly effective. The Germans began an extensive program of apprentice training years before there was any need for skilled workers. Men who had been trained through apprenticeship were, as a matter of fact, frequently assigned to mere machine operating jobs. When war production was wanted, the skilled workers were ready. We have been slow to recognize the importance of an adequate program of apprentice training, but within the past year there has been a significant extension of our activities in this field.

The bulk of the labor that is being recruited today is being recruited for semi-skilled occupations. In most such jobs a new worker becomes useful after a short period of intensive training on the job. The expansion of employment in the aircraft industry since 1938 has been based upon a program of in-service training. It has made it possible for the airplane companies to more than double their employment every twelve months. The task of in-service training has been made simpler by establishing pre-employment and refresher courses in the vocational schools. A large proportion of the trainees have been youths with little or no work experience, but who have been given an opportunity to familiarize themselves with the operation of standard machines outside of the operating establishment. They are, therefore, in a position to benefit more rapidly from intensive training on the actual job.

In-service training is of particular importance as it makes possible the advancement of workers to more skilled jobs. The Bureau of Labor Statistics surveyed the method of recruiting workers for skilled jobs in four shipbuilding plants during the first six months of 1941. Half of the workers placed on skilled jobs were upgraded from jobs as helpers, apprentices, handy-

men, or other semi-skilled or unskilled employments within the plant. Comparatively few of the skilled workers had been drawn from other shipyards. The process of upgrading workers not only has been effective as a means of acquiring skilled employees but has also notably improved morale within the establishment.

As has already been said, production requirements are so large that in most defense industries it will be impossible to meet the need by training fully skilled workers to carry on with existing productive processes. It has been possible, however, in large numbers of cases to simplify the jobs in such a way as to reduce the proportion of craftsmen who are required. Thus, it was possible to increase greatly the output of precision optical instruments in government arsenals and navy yards without the addition of skilled lens grinders, after the skilled jobs were broken down into component operations, each one of which was simple enough for local labor to perform after a short period of training. Industrial enterprises have similarly found it possible to multiply output many times with a maintenance of quality and a reduction of cost, through the simplification of jobs. While the techniques of economizing in the use of skilled labor are known, they have not yet been sufficiently utilized. Here also we have tended to meet our problems only when we have been placed under maximum pressure.

It has frequently been the case that labor shortages have been reported when in fact the shortage was due to the establishment of specifications by the employer that were higher than those which were actually called for on the job. Thus, when the Bureau made a survey of reported shortages of labor in the machine-tool industry in the spring of 1940, it was found that relatively rigid age requirements were still in force in a number of establishments. These artificial barriers to full utilization of labor supply have tended to break down as the labor market tightened. Thus, since April 1940 there has been an 11 per cent increase in the number of workers more than 55 years of age who are employed as against a 7 per cent increase in the employment of workers between 25 and 54. The Civil Service Commission specifically raised hiring limits for

arsenal and navy yard workers from 48 to 62 years, and similar increases have been made by many private firms. It is probably safe to say at the present time that age is not an effective barrier in any of the shortage occupations.

In a number of communities where local general labor shortages have been reported, the shortage has been acute with respect to young, white males, but has not in fact been general. At the present time a number of firms which have refused to employ women are experimenting with their employment. The process of simplifying jobs has tended to encourage their employment. In some instances simplification has given rise to jobs which can be quickly learned and which call for precisely those forms of manual dexterity in which women excel. Thus, time fuses are assembled at the present time at Frankfort arsenal almost entirely by women, whereas when the job was done on a smaller scale it called for the type of skill and experience that we associate with watchmaking.

There is still extensive discrimination against the employment of Negroes and other minority groups. The Bureau of Employment Security reports many instances of failure to use available skilled and semi-skilled Negroes, and has found that such failure has "accentuated the shortage of skilled workers in certain occupations and slowed up production." As a matter of policy the government seeks to prevent discrimination against minority groups. The President's Committee on Fair Employment has had some success in breaking through these barriers. I think it must be taken for granted, however, that unless there is a further modification of hiring standards, shortages will continue to be experienced before there is in fact a real shortage of workers.

The discrimination against groups of German and Italian origin is serious. Substantial numbers of employers even in nondefense industries have refused to hire workers from these national groups. The shortage of workers is already sufficiently acute so that we should discourage the establishment of private standards of patriotism.

III

If I were to summarize the outlook, I think I should not say that the labor supply *is* adequate. The existing labor supply

is inadequate to the tasks ahead in every sense except one—that it can be *made* adequate in time to meet any production schedules that have been laid out so far.

To do so, however, will involve a major effort by the entire community. We ought not to expect that the entire training program will be carried by defense establishments. While we must make every effort to make sure that labor turnover as between defense establishments is held to a minimum, it is going to be necessary this next year, as it has been in the past, to move skilled workers from unessential to essential industries. Only in this way are we likely to enlist the services of all employers, those engaged in nondefense work as well as those with heavy defense loads, in the job of training. The job that lies ahead of us is too heavy a task to be assumed by those with defense contracts alone. The best that we can hope for is that it may be possible through the Employment Service to rationalize this mobilization of skilled man power; the transference of skilled workers to defense must go on. The success of our defense effort this next year depends in large part upon harnessing the energies of all employers in the United States to the training program that is essential.

In any event the task ahead of us is too large to permit man power to be wasted. The efficiency of our job today is impaired by high labor turnover rates, by rising accident rates and by unsatisfactory industrial relations. We see clearly enough the man-days of production that are lost through strikes and lockouts. What the public does not see—what even many industrial managers fail to realize—is the tremendous wastage that goes on day after day in unspectacular ways.

There has been almost a threefold increase in quit rates in manufacturing industries over the past year. The quit rate is higher in industries which are largely engaged in defense work than in manufacturing industries generally. Turnover adds its burdens to the already staggering training job which has to be done. The aircraft industry, for example, has been adding ten to fifteen thousand workers a month. At the same time, individual plants have been losing to other aircraft manufacturers or to other industries as many as five thousand workers a month. Personnel departments, therefore, carry a

load 20 to 30 per cent larger than would be the case were turnover drastically curtailed. A stabilization of wage rates as between companies of the same industries may be an important factor in reducing the turnover rates. Such a stabilization has been achieved by the Labor Division of the Office of Production Management in the shipbuilding industry and will probably be achieved in other defense industries as well. It seems probable, however, that some stabilization of living costs and living conditions is going to be necessary in order to reduce the unnecessarily high labor turnover rates. Housing shortages are contributing to the search for new jobs.

Industrial accidents at the present time give rise to a substantial loss of productive capacity. The accident rate increased markedly last year in shipbuilding, aircraft production, and the manufacture of machine tools. Such evidence as is available indicates a continued increase in industrial accidents. The development of adequate safety programs would have significant results in conserving our labor supply.

There is also an obvious need in reducing to a minimum the amount of productive effort lost through bad industrial relations. The need of reducing time lost through strikes is obvious. The National Defense Mediation Board and other agencies of the federal government have scored substantial successes in preventing disputes and in securing a prompt settlement of disputes. As all of us, workers and employers, become increasingly conscious of the paramount importance of defense production, stoppages of work will become less and less important sources of lost time.

I think we should all recognize the fact, however, that grievances which never emerge as strikes have caused serious losses of productive effort. To the extent that self-discipline, public pressure, and machinery for conciliation keep grievances from flaring up into stoppages of work, it will become the more important that grievances be satisfactorily and rapidly disposed of. The public is prone to think that production goes along smoothly until it is interrupted by a strike. Every industrial manager knows, when he stops to think, that the day-to-day flow of high level production depends upon teamwork. We still have a long way to go in this country before our industrial

relations are sufficiently well developed so that we are in fact making a maximum war effort. To develop that maximum effort, it will be essential to establish a degree of collaboration between workers, employers and the government that has not yet been achieved.

Finally in terms of effectively utilizing our potential labor supply, increased attention must be paid to the geographical distribution of the defense load. In the first days of our defense program, primary defense contracts were necessarily concentrated in establishments that were equipped to undertake an immediate expansion of their work. While this complicated the problem of obtaining skilled workers, it did not cause serious embarrassment with respect to the total labor supply, for in almost all communities there were large numbers of unemployed workers. Today this is no longer the case. I have already noted the fact that in many communities the expansion of defense employment has necessitated a migration of workers. Further substantial migration will be necessary this year and next. By and large, however, it is likely to be easier to take work to the man than it will be to bring men to the work. Increasingly we are going to be faced with the fact that unemployed individuals are located in communities in which their services are not needed. While a substantial portion of these persons can undoubtedly be moved, a large amount of man power will be lost, unless we decentralize defense production much more extensively than has so far been the case.

Here then is an outline of our task. The labor resources of the United States are fundamentally adequate. We still have the man power to do the job. But in order to utilize that man power we must train several millions of workers. We must utilize each man and woman at the highest level of skill to which he can be quickly trained. We must simplify operations to conserve skill, even though we impose a larger burden on management. We must train an adequate managerial and supervisory force. We must conserve our labor resources to the utmost. We must bring jobs and man power together, if we are to avoid the waste of unemployment in one area while plants slow down expansion in another for lack of men. To do all these things we shall have to pull together more effectively than ever before.

Given the will, we can produce the guns, the planes and the ships that are called for. We have the supply of workers in terms of raw man power. We are not up against the sort of situation that the British are facing or that the Germans are facing, in which, in order to get another gun, they have to take somebody off a textile job. That situation is one that we will not have to face for many, many months to come. The job that we do have ahead of us for this next year is the sort of job that we have faced actually over the past eighteen months. We know what has to be done and how to do it. Quantitatively, however, the task is larger and the shortages in critical occupations are more imminent. We are not going to be able to meet our defense schedules, with respect to our labor supply, unless we do a more effective job this year than we have done in the past. We must be prepared in some occupations to encourage transfers from nonessential to essential industries. Plants that have completed an expansion program and are in a position individually to relax their training efforts will have to be persuaded to carry on. We must bring into our effort not only the man under immediate pressure but the entire community.

DISCUSSION: PRICES, WAGES AND THE GOVERNMENT

CHAIRMAN MORGAN: The Academy has a time-honored practice of throwing its meetings open at this point for discussion from the floor. The rule limits each participant to three minutes; and the time that we have at our disposal is probably twenty or twenty-five minutes. I am sure that the stimulating discussion of these gentlemen has inspired a good many questions. I hope that you have stored them up in your minds.

First, I am going to ask a question myself, which I suppose is highly irregular, but you can imagine, if you will, that I am a step or two down. I remember that, four or five years ago, on one of the numerous occasions when I was in Germany, the question arose whether you could get enough pork to run a bank. Now, you would not suppose that you would need pork to run a bank, but this bank had a practice, as many New York banks have, of feeding its employees. It ran out of pork, and to go into the market and buy pork was very difficult. You might, if you ordered pork, get fish or you might get something else.

It occurred to the head of this bank that he might go to the country and find a pig; which he did. Then the question of the price control came up, because a pig was so much a pound whether it was delivered in Berlin or on the farm, and if you paid any more, you would go to jail; if you accepted any more, you would go to jail. So there would be two people going to jail if this pig were sold at higher than the standard price.

The buyer was a banker, so he was ingenious. It occurred to him that he might pay the standard price for the pig and get a receipt for it, and then pay a substantial bonus for delivery. Well, the pig was delivered in Berlin and ultimately went down the digestive tracts of the employees of the bank, quite as satisfactorily as if it had been legitimately purchased.

The authorities finally put a stop to that sort of thing and you could not buy what you chose by adding slightly to the price through some expedient of that sort. This is all by way of introduction to a question which I want to put to Dr. Mills. It seemed to me that his proposal was very ingenious: that prices be frozen as of a given date, and that, having established this glacial area, one price after another be thawed out as you see fit; I mean to say, as the government sees fit.

Knowing that, in Germany, the method of applying these controls is the method of the informer and the blackjack, with a concentration camp if necessary—I see that I have probably already prejudiced the answer (laughter)—I would like to ask Professor Mills how he thinks that such a proposal could be implemented in a country which, I trust, is still devoted to the principles of the Bill of Rights.

Is that too tough a question, Fred?

PROFESSOR MILLS: I think it is a question that might well be addressed to Leon Henderson or the House Committee on Banking and Currency rather than to me.

I suggest that a freezing process, to begin with, is perhaps the most politically expedient and effective way of avoiding pulling by special interests for special exemptions. But there should be a wide thawing at the very start. I think there would be wide areas in which no control at all would be attempted, and pigs might belong in such an area; I am not sure.

The actual machinery of enforcement is something I would not like to discuss here; in fact, I have not the detailed knowledge that would permit me to go into it. I suppose you would expect voluntary agreement to be the instrument of enforcement over large areas. There would be exceptions—you could not avoid them—of men who chisel, but I think deliberate chiseling on a wide scale in the special areas in which continued enforcement would be necessary would be rather unlikely.

MR. JULES BACKMAN (New York University): Mr. Chairman, I would like, first, to add a footnote, if I may, to Professor Mills's able discussion of the price situation. I think that the group might be interested in the comparable data from abroad, in order to see how we are progressing in comparison with other countries.

In England prices—that is, wholesale prices—are up about 55 per cent. It is interesting to note, though, that 32 per cent of that rise took place in the first four months of the war; the remaining 23 per cent has taken place since December of 1939. They have used selective price control in Great Britain, not the general ceiling plan. During the World War, the rise in the first four months in England was 7 per cent and then 84 per cent in the following two years. The rise in World War I was, therefore, substantially greater than in the same period in the present conflict.

Turning to Canada, in connection with which there has been much information recently concerning price controls, prices rose about 13 per cent in the first three months and 14 per cent since then. In the past few months there has been a relatively sharp rise in Canada but

not so sharp as in the United States. During the World War I, prices went up 2 per cent in the first few months, and then 52 per cent in the following two years.

A second footnote: Professor Mills told us, and correctly so, that the consumer is being squeezed. I think that we should note one very important difference between the situation today and during the World War I. The place where the consumer is being squeezed is in connection with many food products and clothing products. It is one of the places where we do not have the same sort of bottleneck that we have in the case of iron or steel or copper; and I might note that although the over-all figures show a fairly substantial rise since the beginning of this war effort, since February of this year there has been practically no rise in industrial raw materials of the type of copper, zinc, lead, iron and steel and similar products.

A third footnote, which also compares the two periods: It is true that there was a sharp rise in 1916, but again, there was a very important distinction. One of the causes of those earlier price rises—and I think that most historians are agreed upon this—was the uncoördinated buying of the Allies. They were bidding against each other. That is not taking place today on the same scale.

Concerning the price-fixing bill which Professor Mills pointed out was rather inadequate, I think that that is a masterpiece of understatement. (Laughter) The initial bill which was introduced some three months ago was certainly very inadequate, but to apply any such mild term to the revised bill which has recently been reported seems to me to do little justice to it. I think we might be better advised in considering it as a price-raising bill rather than a price-fixing bill.

My question for Professor Mills is this: He pointed out the advantages of selective price control and gave an excellent justification for its use, but then he suddenly said, "Let's freeze all prices", by which I assume he means variation of the so-called Baruch plan or the Gore plan, or something pretty close to that. If it is desirable to fix all prices temporarily and then to release large segments, which for one reason or another should not be frozen, why should we not follow the Henderson plan, although with modifications? I mean, a selective price control bill, fixing key products, which is what they did in Canada. Prices there rose 27 per cent, with 40 per cent of the national income devoted to national defense. We are now devoting about 20 per cent. Why should we not start with a selective price control and make agricultural products subject to the same controls as steel products and tractors and everything else, and then fix merely those prices which are getting out of line?

PROFESSOR MILLS: As I explained in answering Mr. Morgan's question, my suggestion was made in large part on the basis of expediency. I think that you are bound to have pulling and hauling of political forces in any congressional committee which decides what the areas of control should be under a selectively operating administrative board.

MR. BACKMAN: Would there not be the same pressures in determining which areas should be released?

PROFESSOR MILLS: I think not. I think that it is more feasible to get a general bill through than it is to have the selective decisions made in a committee of Congress.

Secondly, I do not think that an administrative board can operate effectively without having very broad powers behind it. If its powers are restricted and limited, its operations will be ineffective. I should like to have the thawing done on the initiative of the board which retains a club in its own hand. But, as I pointed out, I think that very wide areas ought to be completely free; only when they become dangerous, should controls be exercised. The board should do the freeing and not have its hands tied from the start by a law shaped by political pressures.

MR. BORIS SHISKIN (American Federation of Labor): I want to direct my question at Mr. Hinrichs. It involves the priorities unemployment and unemployment which is taking place due to shortages, due to applications of priorities and allocation. Broadly speaking, is any attempt being made to estimate quantitatively the impact of that type of unemployment? Would Mr. Hinrichs think it desirable to initiate a program of current inventory of machinery and equipment carried on by industry and coördinated by the government on the one hand, and an inventory of skills carried out by the Employment Service in coöperation with labor, on the other? Would such inventories bring about a greater dispersion of the load of defense production now, and also enable us to take care of the reallocation of industrial effort at a time when the emergency is over?

MR. HINRICHS: As to the last part of your question, I think that it is extremely important to develop measures that will enable us in fact to achieve a greater geographical dispersion of our defense load than we have even yet achieved. I am not sufficiently competent in that particular field of the placing of contracts to say with any degree of authority whether an inventory of industrial machinery and an inventory of skills are essential to performing that task. I think

that some of the most successful results that have so far been achieved have been in cases where there have been at least local inventories of that potential and where the placing of contracts has been decentralized through such services as the defense contract service, or the supply offices of ordnance.

As to the first part of your question, whether there are quantitative measures of priorities unemployment, the answer is: No! There are estimates in certain fields and measures of changing employment in certain fields—estimates that have been made in connection with automobiles, estimates in connection with the leading household appliances, rather definite measures of changes in employment, extremely current, in connection with silk. I do not think that it is feasible to develop a measure of priorities unemployment.

When you come to define your terms, you will probably find that the situation does not lend itself to current reporting. We in the Bureau of Labor Statistics, as a matter of fact, following rather closely what the shifts of employment have been by localities and to some extent by establishments, can do more and are planning to do more in that field than has so far been published.

Mr. Walker (Long Island Textile Association): I would like to ask Mr. Mills what he envisions as the final picture of a ceiling established on the sale price of manufactured fabrics, such as cotton goods, with one important element left out—wages—and with a very flexible control over the price of raw materials. That is the first question.

The second question, and I hope it is not too embarrassing, is this: Is there any valid reason, other than politics, why the question of wages and agricultural raw materials should not be similarly handled? (Applause)

Professor Mills: I think you have misunderstood my statements if you understood me to say that agricultural raw materials and wages should be left out.

Mr. Walker: No, I understand your position; but I am stating the condition that now exists!

Professor Mills: I think the controls should be all-embracing. Certain elements would be exempt, however, as I suggest, in practice; and they would be very large elements. But the power should be all-embracing, reaching down to elements of cost as well as covering the finished goods.

MR. VELBICK: There has been a suggestion of eliminating the control of agricultural products from this bill; and many people who have attained employment in the last year or year and a half, presumably, have had occupations at a much lower wage than they are earning now. They have probably lived at a lower standard than they were ordinarily accustomed to. Why cannot a large part of this newly increased income be spent for commodities like cotton textiles, food and those agricultural products still limited in quantity by governmental policy; that is, why cannot the government stop limiting the amount of wheat or cotton or hogs and allow this national income to be used by people to increase their standard of living, and at the same time remove a handicap on the national defense effort?

PROFESSOR MILLS: If that is addressed to me, I think that it is one of the things that should be done. It is my understanding that it is being done, that restrictions on agricultural products have been very greatly reduced this year and perhaps will be removed entirely within a very short time. In so far as we can draw on those sources for supplies of consumer goods without straining the defense effort, that is obviously one very desirable thing to do.

MR. GEORGE WESTBERG (Berkshire Spinning Associates, Providence, R. I.): Assuming, as you so generously intimated, in your talk a minute ago, that we are still operating under the Bill of Rights and on democratic principles, I would like to ask Professor Mills whether he agrees or does not agree with the present method of the operation of price-fixing under Mr. Henderson. I will explain that first by saying that Mr. Henderson takes the position—in fear of Thurman Arnold and the Sherman Anti-Trust Act—that if he collaborates with industry in the fixing of prices, both Mr. Henderson and industry will go to jail. We feel that if industry were taken under the wing of the Office of Price Administration and put in a position to control inflation, it would immediately arouse the patriotic efforts of most businessmen, who are now being squeezed between the effort to protect the consumer and to protect the laborer and the farmer; that we would then get much farther in the program of national defense.

I would like to have Mr. Mills express himself on that.

PROFESSOR MILLS: Would you phrase your question again?

MR. WESTBERG: My question in short is this: Do you not feel that the method of price-fixing would be made much simpler and more

effective if representatives of industry were made an integral part of the Office of Price Administration?

Professor Mills: I think that the answer to that plain question is Yes; that it is an unthinkable thing that the Office of Price Administration should operate without taking full advantage of the technical knowledge that men in industry have. I do not know whether your question carries further implications as to where power should lie, but as to the participation in the work, I think the answer is clearly Yes.

Mr. Westberg: Well, Professor Mills, I might say that industry is allowed to appear and to discuss its various problems, but it is told and told definitely that it can have no part, because of the Sherman Act, in the final decision as to price levels. That remains entirely with the Office of Price Administration and to the exclusion of any opinion that industry might have. How do you feel about that? (Laughter)

Professor Mills: Apparently some of the attributes of Deity descend upon a person when he presents a paper here! (Laughter) I think in good part your question lies beyond the sphere of my paper. I suppose my general answer would be this: Government in war time has to have supreme powers. It can take men from their homes and put them in the army. I suppose, in the last analysis, it must have complete powers over strategically important industrial resources. We may complain if the shoe pinches, or if laws are badly administered, but I do not see how you could restrict the power over important industries that goes into the hands of government in war time.

Chairman Morgan: In other words, I suppose that it is not only the gentlemen on the platform but the government itself that is endowed with the powers of Deity.

Thank you very much! We have now reached half-past four and I am very grateful to the speakers. The meeting is adjourned!

PART III

ORGANIZATION FOR VICTORY

INTRODUCTION *

HENRY R. LUCE, *Presiding*
Editor of *Time, Life* and *Fortune*

IF a Nobel Prize were given to the statesman who in this year had spoken the bravest word, I would respectfully nominate the Vice President of the United States. (Applause) In this year of 1941, this April, Henry Wallace made his outstanding speech on foreign affairs; and what did he ask his fellow countrymen to do? He asked us " to make the world safe for democracy."

Woodrow Wilson's words are words by which America in the twentieth century will be judged, be it in sorrow and cynicism or be it in praise and accomplishment. In Wilson's day it took genius rather than courage to speak so boldly of democracy, for democracy then was the pride of those who had it and the world's political fashion plate. Today the development of democracy requires courage—men of courage.

But it takes more than courage. In this Academy we recognize that democracy requires a political science, and that this science needs to be as rigorous in our time as it was with Plato and his friends who founded the first great Academy of Political Science in Athens. Just as Plato scorned the notion that politics could be no more than organized brigandage, so we scorn the notion that politics can be nothing more than a noisy pie-carving among greedy economic classes. We need a political science, adequate to ever-widening democracy. Henry Wallace is a man of science.

* Opening remarks at the Third Session of the Annual Meeting.

And I think we know one thing today better than Plato did. We know that in the pursuance of the largest purposes of man there is required not only courage and not only science, but also faith. The man of faith labors under great difficulties in 1941. International betrayals have gone hand in hand with private treasons. In a world where both men and nations have lost faith in each other, the man of faith is in the terrible middle of a world of transition. The man of faith must nevertheless believe in a better world. Millions of his fellow countrymen know that Henry Wallace is a man of faith. And millions know that this year the man of faith is a man of work. Excepting only the President, no man is charged with heavier duties than Henry Wallace for organizing victory, victory in peace no less than in war.

Man of courage, man of science, man of faith, and man of work, we are deeply honored by his presence here tonight, and to all our guests of the radio audience we say, " He that hath ears, let him hear." Ladies and Gentlemen, the Vice President of the United States.

(The audience arose and applauded.)

PRODUCTION FOR VICTORY

THE HONORABLE HENRY A. WALLACE
Vice President of the United States

CHAIRMAN LUCE, as I look around at this distinguished audience of noted professors and leaders in business, I somehow feel that I am not meeting so much with the political scientists and business leaders of the nation, as with Mr. and Mrs. Average Man and Woman. When his emotions are deeply stirred, even the statistical economist will forget for a moment his facts and figures and will think and act like a taxi-driver or a farmer. All of us today, men, women and children, are drawn together by one intense desire, that of seeing Hitlerism destroyed—and with it all of the things for which that terrible murder machine stands.

The President made things clear to us in his Navy Day speech. With our Commander-in-Chief leading the way, we shall not rest until the despotism which imperils every democracy has been cast into the utter darkness. Our President has called for a supreme and uninterrupted war defense effort, on the farms, in the mines, and in the factories. He calls for labor, capital and management to forget their differences. All three must be willing, if need be, to serve even as our boys are serving. Our Chief has made it clear, so that every member of the Axis can understand, that we are ranging ourselves with the other free countries and in our own way battling against the associated gangsters and jackals who are out for territorial loot. With the President as our leader, and with the overwhelming majority of the people solidly behind him, we shall not stop until the victory has been gained.

Two weeks ago American families by the millions listened with profound approval to our President as he stated our American aims. The American family has just one concern and that is how to destroy Hitler quickly without destroying our custom-

ary democratic life after the war is over. The American people have learned how tremendously efficient is the Nazi slavery system in turning out bombers and tanks. We know that the speed of our assembly line can turn out still more bombers and tanks, but only if we as free men express a passionate will for victory through hard work and personal self-denial.

To Mr. and Mrs. American Family I say tonight that our standard of living, our ideals of religious liberty, our dignity as individual human beings, and the American flag itself, are now under trial as never before. To meet that trial everyone of us must face in his or her own way the necessity of making a sacrifice. We must rise to the call of our country, as generations of patriotic Americans always have risen to the call of their country in her hour of need.

When there is real danger the American people are willing to give up the pleasures they ordinarily enjoy. They want to give and not take. Americans are the most generous people on earth. But, in the job that lies ahead of us, we all want to see preserved the principle of fairness in giving—of equality in sacrifice. Our government must not permit the avaricious and unpatriotic to hoard or to consume at the expense of the heart and soul of America. Our government must not permit ignorant and selfish minorities to ride out the storm under the slogan of "business as usual" or "consuming as usual". Now that we know the size of the job ahead, we must find ways to keep these selfish few from wrecking the sacrificial efforts of the many.

None of us can expect to eat and wear and drink and buy on the basis of peace-time luxury living. If wealth and the display of wealth are made the measure of American citizenship, we cannot send Hitler to his doom. There is only one measure of Americanism in the years immediately ahead and that is the ability to work and serve to the utmost. For a time we shall willingly modify our American standard of life, so that our raw materials can be used where they will do the most good. Our country needs her copper, her aluminum and her steel to fight the battle of freedom on the seven seas and in all the continents of the world. Our country cannot permit the use of these precious, critical raw materials to enable the well-to-do to enjoy

their customary luxuries. Even those families in more moderate circumstances will be asked to deny themselves. All of us must economize in using metals.

We are proud that Mr. and Mrs. American Family have lived better than the average family anywhere or at any time. Even under world stress we want to maintain this high standard of living at the maximum of reason and right. But the times are now so acute that all of us must solemnly resolve to give up this high standard of living if need be. Willingness to share equally in the sacrifice must be the guiding motive of each and every one of us, as well as of the government, during this war. Any other attitude will open the road to defeat, slavery, and the end of democracy. Our nation was conceived in the Declaration of Independence. It grew to manhood under the ringing words of Jackson and the long struggle of Lincoln: "Our Federal Union—it must be preserved." Today our nation can fulfill the highest dreams of Washington, Jefferson, Jackson and Lincoln by adding another principle deserving to rank with those of the founding fathers. This is the principle of equality in sacrifice.

In these days it is not enough to talk about the constitutional rights of the individual. Those who wrap the cloak of the Constitution around their vices and selfishness by that very act defile the Constitution. The Constitution in times like these was meant not to serve as an excuse which selfish individuals could use to dodge their duty. Any broad construction of the Constitution, and especially of the Preamble, makes it clear that in the case of need the principle of equality in sacrifice must dominate all our actions.

If any particular American feels aggrieved, let him or her look at Germany, where all civilian life is subordinated to the needs of war. There is no civilian construction, no production of ordinary household goods, no new passenger cars, and practically no new clothing. Gasoline to run old cars is allowed only to certain preferred classes such as doctors. You cannot travel on railroads in Germany except for business and other essential purposes. Electricity is rationed along with food, coal and clothing. If the radio is out of order or the roof leaks, repairs can be had, but usually only after delays of many weeks

or months. Before you buy new clothes you must tell what old clothes you have. God grant that we may never have to go as far as Germany in the rationing of our civilian life, but I would also hope, if the occasion should ever demand, that Mr. and Mrs. American Family would demonstrate a capacity for sacrifice superior even to that of those whom Hitler has so terribly deceived. We who believe in freedom must outdo the dictators in our will to win.

We shall have an all-out production program, but not for a long time could it be as hard on this country as the impact of war is on Germany. Our resources are much more abundant. Our standard of living was so much higher than Germany's to begin with. We have not even yet reached the limits of our labor supply. Transportation permitting, there is no shortage of gasoline. Even though new passenger car production should be most severely cut, there are nearly thirty millions of old cars which can keep our country going for some years. By sacrificing the fat and even some of the things many of us have come to call necessities, we shall almost certainly get the job done. In case of need, I am sure that we Americans on a free-will basis can demonstrate the capacity to go as far as the Hitler dupes have gone on a slave basis. We are prepared to sacrifice to the limit. But we ask two questions: First, is it necessary? Second, is the principle of equality being observed?

These two questions have especially interested me, because during recent months the President has honored me with the chairmanship of two agencies which must be guided by considerations of equity and fairness, on both the national and international fronts. To develop rules for equality in sacrifice, and to enforce them, is unpopular business. To take things away from a hoarder or to deprive a speculator of unearned profit may be unpleasant business. By means of priorities and allocations we can solve in justice the problems of shortage so that America can defeat Hitler. We shall be firm, but in cases where the defense needs allow us to employ judgment we shall accept the solution which will give the greatest employment to the greatest number. In case of doubt we shall give the first priority to human rights. That is the American way which we followed in the Revolution, in the Civil War, and during the past

nine years, under our President. Just as in his inaugural address on March 4, 1933, President Roosevelt today stands for the rights of the average American family. In 1933 he stood for equal rights in the correction of a badly distributed abundance; today he stands for the American family having the rights and duties of sharing equally in the hardship resulting from great shortage. The American people are eager to do this job of sacrifice. Aside from the noisy minorities, they are ready for it. I know we have just begun to do our job and we are preparing for an effort which is far greater than that which has thus far been attempted.

We Americans believe that the great sacrifice required in the years ahead has a significance far beyond that of destroying Hitler. This time our sacrifice must mean real peace on earth, real freedom of the seas, real freedom of access to raw materials. Modern science, if it is of God and not of the devil, means that man was meant to live in peace and abundance. Under a world régime of peace and abundance, I am sure that farmers, workers and businessmen in all the nations of the world can be more prosperous than ever before.

It should be made clear that the kind of planning we have to engage in to win the war is not the kind which best will win the peace. The rationing of war-time shortage is one thing and the production and distribution of peace-time abundance is another. I am sure that all of us who treasure the American tradition are keen to see the time of peace bring a more adequate protection of small business and private enterprise through a more workable relationship between capital, labor and government. Of necessity, when the peace comes, all thoughtful men of influence in government, business, labor and agriculture must concern themselves profoundly with the relationship between the private economic structure and governmental planning. They must concern themselves with public works, conservation, road-building, agriculture, monetary policy, and the joint as well as separate efforts of government and private enterprise to maintain full employment. Today in our war-time planning we shall not utterly forget our peace-time objectives, but we must remember that first things must come first, and time is short. The needs of those resisting the aggressors are immedi-

ate. And so we do the things which will get the fastest results for it is only results that count in saving our New World freedom.

To take care of British, Russian, Chinese and Latin-American needs, as well as our own defense machine, requires vast quantities of copper, aluminum, steel, zinc and a dozen rare metals. The standard of living of Mr. Average Family in the United States expresses itself very largely through consumption of products made in part out of these metals. There is not enough of these metals to go around for everybody. In meeting this scarcity situation, we must work out standards which can be applied with common sense to bring about a feeling of joint sacrifice in doing a tremendous job. As civilians we consumed, in the summer of 1941, about 30 per cent more per capita than during the average of the five years before the war began in 1939. If we are to help our friends overseas so efficiently that we do not have to fight on this hemisphere, we simply cannot go ahead in 1942 consuming more per capita than we did during any of the five years before the war began. We cannot permit a war-born prosperity derived from governmental appropriations to increase consumption in lines where it interferes with defense activity. Along that road lie both defeat and inflation.

Army, Navy and Lend-Lease requirements have been expanding rapidly in recent months. I hope and believe we can get the whole story of this picture within the very near future, so that we can under the principle of fairness allocate the material left over from defense needs among the civilian industrial requirements in this country and in Latin America. We must apply the principle of equality in sacrifice in a realistic manner to the needs of South America, as well as to the needs of our own people, if we expect to see the popular sentiment in Latin America maintain in power governments which are against Hitler.

When I think of the average American family there oftentimes come before my mind's eye a farmer and his wife at the dinner table at noon with half the day's job done and the other half yet to come. The hours are longer now because the factories are paying such high wages, or perhaps the oldest boy

has gone into the Army. And so, while the farmer has more money to spend than he had several years ago, he has more worries and less help and oftentimes he does not get through his work until nine o'clock at night. The farmer has the money now to buy labor-saving machinery. But there is not enough copper and iron to permit us to produce all the farm machinery the farmers would like to buy next year. Milking machines and dairy equipment, yes, because we need to expand milk production all we can. But in many other lines, no. Under the principle of spreading burdens fairly, we are going to do everything we can for the farmer, because we do not want to see Mr. and Mrs. Average Farmer so worn out with long hours that they cannot lead a decent family life. But if farm people could look at the figures of production and materials that I see day by day, I know that they would be proud to offer their bit to destroy Hitler by adding an extra hour to their day's work.

There is something clean and pure about sacrifice when we know what we are doing. Millions of American families have been asking during the past two years, "What can I do?" Some of them have thought they could serve only by dropping their own work and coming to Washington. As a matter of fact, nine out of ten people in the United States can best serve by doing a good job right where they are, working harder, and not buying any more of the things that compete with defense than they did in the five years before the war.

Our grandfathers knew what it was to meet with shortage and to inculcate the principles of self-discipline within the family. It will be a source of spiritual strength to the nation to do that kind of job again. Frankly, I do not think self-denial, even extreme self-denial, is as hard a job as learning to live sensibly with abundance. But it is hard enough to call for the best that is within us.

I like to think we are helping the democracies to the utmost in fighting this war so as to save the American family. The American family is God-fearing. It is prepared for sacrifice. Whether on the farm, in town, or in the city, the American family, soft though it sometimes may be, is truly fine and sound at heart. This family that each of us sees before him is not narrow, constricted and mean in its outlook as some of the isola-

tionists would have us believe. It is capable of developing, applying and living under the principle of sharing sacrifice equally. This family, no matter whether it be in labor, agriculture or business, believes that no minority group should block our defense effort. Public opinion polls indicate that on any problem of this sort fully 80 per cent of our people think soundly. All that is necessary to get effective action is to explain the need clearly and then discuss the methods through which that need can be met.

In times of stress all normal people turn to that deep something within, which unites us with that omnipresent force that we call God. During the year ahead the stress and strain which will be laid upon the American people will be so great that millions of us who for many years have not felt God intimately in our daily lives will feel Him as never before. We shall realize Him through the act of sacrifice, giving of our time and money to maintain the democratic way of life. We believe that democracy is an expression of religion, not of the Jewish, Catholic or Protestant religions alone, but of all true religions whatever their name. We are fighting for the sacredness of the human soul.

In this fight the measure of our success in 1942 will be all-out production. By putting one-half our effort into national defense instead of less than one-fifth, we shall match what the British and Germans are doing. We have the physical resources, the mechanical ingenuity and the will to do this job.

Only by producing a really great arsenal at all possible speed can we have the opportunity to build a really lasting peace, to bring about that great day when human beings and their humble needs are the supreme things in life. By our might and our enthusiasm we shall enthrone the human being above the despot. In 1942 every man shall save himself who serves all and all shall be saved as all men serve. In that spirit of self-sacrificing team play, we shall build the might which will win and keep the peace. We shall animate our myriad thousands of tanks and bombers with the fiery spirit of a democracy subjected to the ultimate test. The quality of our souls will finally stem the tide of Hitler's brutality and enable us to lay the foundation of an enduring, just and charitable peace. (Applause)

Remarks by the Chairman

Chairman Luce: Mr. Wallace, we are deeply grateful for your message. In the give and take between leaders and people in a democracy, you have given us hard facts, hard thinking, and out of them great inspiration. I know that I speak for every one here in saying that we would give you in return a full measure of equality in sacrifice, and we would not worry too much about the equality, provided each of us is doing at least his share.

I know that each one of us would like to express individually to you, Mr. Vice President, our willingness and eagerness to respond to whatever call is sounded. We cannot do that now, but we have done something better than that. We have here tonight one who will respond for us. It is especially important, I think, that this person should be one not of your party. If we are to organize for victory, we must also organize our minds, organize a common will in this country for the kind of victory we want, and in doing that it is necessary that men of all parties within this Republic, in the framework of democracy, should make their inspiration and expression felt.

One year ago, or so, the President of Brown University gave a little of his abundant energy to campaigning against you, Mr. Vice President, and there were few more effective speakers on the other side. Today it is significant that among all the leaders of American public opinion there are few who have expressed so forcefully the reasons why we enter the struggle and the hopes which we have for its outcome.

It is a very great pleasure to introduce tonight a distinguished educator and a fine American, Dr. Henry M. Wriston, the President of Brown University.

(The audience arose and applauded.)

GOVERNMENT USE OF THE MACHINE IN WAR

HENRY M. WRISTON
President of Brown University

IT is not gracious to quarrel with the topic of the Annual Meeting, but machines deserve a word in their defense. This is not a war of machines, because no machine that I ever saw was stupid enough to make war; it participates only as the slave of men whose power is greater than their wisdom, whose ingenuity runs beyond their morals.

I do not make this point for rhetorical effect, but to recall our minds from subservience to phrases. The machine does not dominate this age. Men and men's ideas, men and men's ambitions, passions, strengths and weaknesses dominate this, as every other age. The monster which wreaked vengeance on Frankenstein was the product of Mrs. Shelley's imagination, and the robot of R. U. R. never existed. The machine is never dominant; man is in control unless terror or stupidity destroys his capacity to function rationally—or to function at all.

We should never deceive ourselves, therefore, that an arsenal of democracy can win a war. Airplanes, tanks, guns are inert; they have neither courage, nor initiative, nor will; they know nothing of blood, sweat, and tears. All the qualities that make for victory are the exclusive possession of men.

Even if machines could win the war, they could not win the peace. The four freedoms—freedom of speech and religion, freedom from want and fear—are all alien to their nature. Peace, like victory, can be achieved only through men's courage, imagination, idealism—and now comes a sour note, a measure, at least, of consistency.

The indispensable premise of both victory and peace, the necessary prologue to the four freedoms must be daily fidelity to those concepts of justice and that equal protection of the laws which are essential to domestic freedom. Procedures at home

must accord with promises abroad. Legislative irresponsibility or unequal protection of the laws is concrete evidence of lack of imagination, of lack of courage, of lack of consistency; it plants the seeds of doubt whether peace can ever come. The only evidence that we can cope with the problems of the post-war world is to be found in mastery of the present job—exhibiting from day to day, maturing from day to day, those attributes of freedom we would like to see *everywhere in the world.*

Government should organize to exploit the machine, but I must remind you that government did not create the machine age. Indeed applications of the machine to government activities lag far behind industrial use. Prolific in paper work, bureaucracy accepted the typewriter long after it was widely utilized in private business. It has adopted the telegram so wholeheartedly that there are many government officers who will never write a letter if a telegram will do. The post office is a government monopoly; yet in all its long history not a single significant invention for the common benefit of mankind has come from that department. It has tardily adopted the mechanical devices laid upon its threshold. But as a soil in which ideas for machines or methods of economy and efficiency can germinate, government has proved sterile ground.

That historical fact should never be forgotten. The strengths —and the wealth—of the machine age are the creation of scientists and inventors, of engineers and managers, of artisans and workmen, of men ready to risk their capital and expend their energies. The triumphs are those of private enterprise. Political action can cut off silk but it cannot create nylon.

The machine-made wealth of the world makes possible government upon the scale we know. The social service state could not survive without the machine. For the government to exhibit hostility to the machine age, therefore, is literally to kill the goose that lays the golden egg.

Historically, too much regulation has proved an evil. During the mercantilist age, governments controlled production and trade in great detail. The purpose was to increase national wealth. In practice, however, invention was hampered; the standard of living was depressed and the state left bankrupt. It was not until such controls were swept away that the industrial revolution greatly multiplied wealth.

The characteristic achievement of the machine age is growing wealth for the workers. There have always been great disparities of wealth, but in other economies labor could never have the slaves of the lamp, the slaves of the motor, the magic carpet of communication. Increased production and improved transportation have banished famine and brought a measure of security from want unknown where the machine has not been developed. If governments, for political purposes, had not obstructed the flow of goods and services over their boundaries, the world would be nearer freedom from want.

Sometimes we pity the monotony of the worker who goes to the factory for eight hours in his car equipped with radio, who works under healthful conditions, with safety devices, who goes home to a warm, light, and well-cared-for house and then to the movies. We speak of the deadly monotony of his labor—as though the shoemaker who inherited his trade from his father and cobbled throughout a long life had variety—as though the peasant plowing with a crooked stick had a less humdrum existence.

By taking a romantic view of labor in the past and a sordid view of working conditions today, borrowing our technique from some of the artists who cannot view the scene except from the angle of the garbage pail, we have distorted our perspective. The machine age has done much not only to lighten the load of the laborer but to bring interest, variety and recreation into his life. The central fact is not that some have millions of dollars, but that millions have comforts and services—the explicit wealth of the machine age.

Not only has it given men better houses, better food, better clothing, but it is committed to the intensive continuance of that program. By its inherent structure, expanding production, a descending curve of prices, and ever broader distribution are essential. If freedom from want does not make headway *everywhere in the world,* the machine age is doomed. For it produces wealth—the real wealth of stoves and mowers and radios and cars and plows which no man can hoard, but men everywhere can use. That wealth of the common man, that freedom from want, government with all its power cannot achieve. It is

the product of the energies, wills, imaginations and skills of individuals.

To sum up the argument thus far: government did not and could not create the machine age; it is dependent upon it; however political action may short-circuit its benefits or destroy it.

These facts now come to sharp focus as the machine age is put at the service of government for war. Public officers acquire new powers and wield instruments of terrible force. By way of compensation they must also accept the responsibility of organizing for victory.

They must seek to understand this vast and complex machine, and not heedlessly throw monkey wrenches into moving parts. Our common safety requires them to accept that obligation. It is not only the money of the millionaire that government takes; it is about to take the car, the stove, the plow, the radio of the common man. By diverting productive energies to destruction, by pouring wealth into the sea and plowing it into battlefields, the government, as Vice President Wallace has indicated, is reducing the standard of living of the common man. It is, by so much, defeating the presuppositions of the machine age; it is losing the substance of social gains made available by the machine. If by poor organization or inefficiency, if by carelessness or waste, if by arrogance or bad temper, if by partisanship or patronage that sacrifice is made needlessly great, it is an assault upon two of the freedoms we desire *everywhere in the world* —freedom from want and freedom from fear.

As the Vice President addressed Mr. and Mrs. Average Citizen and called upon them for sacrifice, I would like to make the same plea to Mr. Average Bureaucrat.

This war upon which we have embarked is great beyond calculation. It may go on for five years more, or longer. No man knows. At best we shall pour into destructive purposes enough wealth to have brought food, clothing and housing to the one third who have been called underprivileged. Every failure of government to avoid extravagance and waste means more drudgery for the housewife, fewer comforts for the family. It expands the number of the underprivileged.

Public officers, therefore, must accept an obligation to show efficiency as great as that of the production line, to make savings

comparable with those of industry where by-products are created from waste, to exhibit ingenuity like that which has wrought miracles in American laboratories.

I am going to suggest, very briefly, five ways in which the government has not yet made clear that it is ready to accept these obligations and organize to take full advantage of the machine in its war effort.

First, destructive extravagance exists right now. Expenditures in aid of the unemployed grow even when unemployment shrinks. Though the farmers' income has more than doubled since 1934, direct federal subsidies to farmers have tripled in the same period. Now there is protest at any ceiling on agricultural prices and efforts are being made to freeze the stocks of grain and cotton held by the government, yet there is no assurance whatever that subsidies to farmers will not be increased again. Although the whole youth situation has changed since the N. Y. A. and C. C. C. were set up, their appropriations have been hardy perennials, growing in size in inverse ratio to the emergency—this despite the fact that representatives of public schools have warned we are heading toward a permanent federal system of education competing with the public school systems for funds, staff and students. Though public works are one of the important ways to counteract depression, now that the depression is over, the forthcoming Rivers and Harbors bill will be perhaps the greatest in history; it has 230 projects and requires 40 per cent higher appropriations than the bill in 1935; it includes major projects which compete with the defense effort; one of the largest would have the collateral effect of further disturbing our exchange problem with Canada and increasing war costs.

Depression devices should be eliminated. Nondefense spending should be cut. Of course it means bureaucratic sacrifice, but not so great as that required of citizens. No bureau is ever decently buried even when dead; it is just coördinated. Government publicity offices proliferate in the face of a paper shortage. Now we are to have an Office of Facts and Figures to coördinate all existing offices of figments and fancies. Saving is the first duty of Mr. Average Bureaucrat. No beginning has yet been made.

Second, the tax muddle makes extravagance more destructive. John L. Sullivan, Assistant Secretary of the Treasury, summed it up briefly: "The present situation—involving double taxation, confusion, service duplication, inconvenience to taxpayers, and much interflow of funds between the various governments —operates against the public welfare." Contrition of heart should be accompanied by an act of faith. We have been promised tax reform so long and so often that it is farcical. The present tax structure is not adapted to getting the most from the machine age in war. The Secretary of the Treasury tells us a committee has been appointed!

The third duty of government is to mitigate the danger of inflation through reform of its own procedures. We know from long experience that violent price fluctuations affect production adversely; rapid advances and rapid declines both throw the machine age out of gear. Yet in the face of the largest stock of money in our history, the government stubbornly keeps upon the statute books laws of a grossly inflationary nature, and directly calculated to defeat our war effort.

Bitter experience with the greenback fallacies after the Civil War should be convincing evidence that they do not belong in the machine age. Yet no move is made to repeal the three billion dollar greenback authorization which hangs like a cloud over our economic structure. The bimetallic basis for currency was fully explored in the nineteenth century, yet the statute providing for a bimetallic currency remains unrepealed. Laws for the purchase of silver and gold at prices above the world market, and policies to implement those follies, are kept in operation. They were adopted as measures of inflation, under the alias of reflation. They remain inflationary while the President of the United States correctly says, "Inflationary price rises and increases in the cost of living are today threatening to undermine our defense effort."

If ever there was an age which ought to realize that wealth lies in production, in the resources which are the basis of production, in the machines which turn out goods, in managerial skill, in craftsmanship, and in the will to use them, surely this should be that age. Money magic and fiscal foolishness should be laid aside and confidence reposed in realities instead of phan-

toms. If the government really wants all-out production, it should remove from the machine age the outright menace of financial flimflam. Hitler himself could devise no trick which would so quickly defeat one of our central purposes. Let government purge its own policy of inflationary threats; then it can impose onerous controls upon citizens—as it must—with consistency and good conscience. Operating the inflation pump with the right hand while opening the deflation valve with the left is not organization for victory; it is sheer demoralization. The teaching about not letting the left hand know what the right hand doeth had reference to giving alms; it is not an indorsement of inconsistent legislation.

I give you a fourth evidence that the government has not organized to utilize the machine age. Though "equity money is dynamic and debt money is static", government is hostile to enterprise capital. In its sixth annual report the Securities and Exchange Commission pays lip service to equity financing: "A reasonable capital structure calls for a substantial amount of common stock equity both as a protective cushion for the bonds and preferred stock and to prevent temporary declines in earnings from resulting in receiverships."

That is a sound statement of policy. How well does it match the facts? Let us look at public utilities, since there is a shortage of electric power, and they are most subject to regulation. From a report of the Public Utilities Division of the Securities and Exchange Commission, we get a picture of public utilities financing during the six years, 1935 through 1940. The financing there recorded is $5,880,824,432. Of this total, bonds and notes accounted for approximately 95.1 per cent, preferred stocks for 4.7 per cent, and common stocks for .2 of one per cent. Two tenths of one per cent does not look like knee-action cushioning!

Today debt capital of the strongest corporations will yield only from 2 to 3 per cent, yet bonds are avidly oversubscribed by a starved market. On the other hand, equities of like corporations, which at present prices yield from 5 to 10 per cent, linger in the doldrums. The mere notice recently that two very strong companies were issuing additional stock sent their market prices tumbling.

Why? Among other things because of government policies. Because of its own dependence upon debt financing, government keeps interest down to minimize its own payments. Because government increases the risks of enterprise while keeping down the rates of money, business is driven to debt financing. Government has financed about 96 per cent of new defense production, practically all by the debt method. Tax laws are cunningly devised to obstruct stock issues; Commissioner Edmund Burke, Jr., of the Securities and Exchange Commission, recently said, "The present provisions of the Revenue Act would appear to be a strong deterrent to equity financing" despite the fact that "purchases of new issues of equity securities . . . on a larger scale than we have seen them during the last decade are essential to our free enterprise economy."

The American public in the past has shown itself willing to accept the hazards of business. But investors quail before the hostility of government; they are daunted by the complicated and redundant demands of bureaucracy, by tax laws that no one is so foolish as to defend; they dread the quixotism of political expediency. Venture capital is founded upon the idea of an economic adventure. It shies at political adventure.

Regulations by their complexity, slowness, and other factors make prompt and adequate financing through equity capital practically impossible, though an S. E. C. commissioner says, "Today, more than at any time in our history, it is important that it flow freely"! If at their inception the railroads or the telephone had been subjected to the same bumbling, officious and bureaucratic control that has bedeviled television, they would never have gotten started. Small ventures and pioneering enterprises have been especially hard hit. If regulation prevents risk, it also prevents growth. Overregulation gives assurance that we shall enter the aftermath of the war with an economic structure devoid of shock absorbers and with a maximum of vulnerability.

The dominant government attitude is an unconscious reflection of the "mature economy" theory. But if we really have a mature economy, we are already defeated. Organizing for victory becomes a sterile phrase, for defense production cannot be stepped up to the degree which victory requires. The con-

cept that our economy is decadent is an echo of the Nazis and Communists; that is their thesis. It is contrary to fact. Half the products—mark this well—half the products of many corporations in the United States are post-depression developments. Thousands more are in the pilot stage; millions are still in laboratories or in fertile minds. If we desire freedom from want in the post-war world, we must turn the Rivers and Harbors bill into clearing the channels for productive ideas that are crowding for realization.

The absence of new equity issues is a Gallup poll which is all but unanimous. It reflects opinion that government policy is hostile to an essential technique of finance for the machine age. That is not organizing for victory.

The disastrous policy regarding new financing is paralleled by regulation which weakens the market for existing equities. The machine age has never functioned efficiently without an active and strong security market. In the Security and Exchange Act of 1934 " sudden and unreasonable fluctuations of security prices " were recognized as creating acute problems for the federal government. The Act sought a more stable market.

In practice the market under the Act is progressively less stable. The sale of fewer shares, and a smaller per cent of the total shares, produces a sharper change in prices than ever before. No more decisive proof of instability could be imagined.

Moreover, the market under that Act is progressively less active. It is not only less active than in the twenties, but less active than in any decade since the machine age flowered. The share turnover in the first nine months of 1941 was only 46 per cent of the volume in the same period in 1935, and 69 per cent of the volume in a like period of 1940. Defense activity, being too heavily debt financed, is scarcely reflected. So the market is progressively thinner and more vulnerable.

No " mature economy " accounts for this condition. England has an economy more nearly " mature " than ours, and certainly is in greater immediate danger. Yet after the fall of France the prices of industrial stocks declined nearly two and a half times as much on the New York market as on the London market. That was not unique: international crises in 1938 and 1939 saw the same kind of reaction. It was not because of the vola-

tile temperament of Americans or the phlegmatic reactions of the British, but reflected regulation so intent upon preventing wrongdoing that it obstructs right-doing, so much concerned with evils of the past that it is not adequately concerned with the necessities of the present or the demands of the future.

Incidentally, the unstable market meant that when British holdings in this country were liquidated, they sold for several hundred million dollars less than they would have done in an active, orderly market. That difference is now being levied upon the taxpayers of the United States under Lend-Lease appropriations. The government, in other words, by unduly distorting normal operations, does not protect the public interest but lays a needless burden upon it.

The security markets remind me of a college friend who was to throw the hammer in a track meet. Because he was nervous he ate only a raw egg for breakfast. When the pains of hunger gat hold upon him, he thought he had indigestion, so he went to the drugstore for some medicine. The clerk gave him pepsin. He solemnly drank the mixture, then asked, " Is that good for my indigestion?" The clerk said " Yes "; whereupon the boy replied, " Give me another glass." The clerk threw him out. Possibly if the Securities and Exchange Commission would turn its pepsin pipeline over to Mr. Ickes to run oil into New York, there might be some relief from pains both real and fancied.

The stock market is another Gallup poll of great signficance; it says in unmistakable language that not only the large investor but the small investor regard the government as hostile to business enterprise. The large investor takes to bonds; the small investor has two alternatives. Either he spends for goods and brings inflation one step nearer, or he puts money into savings banks and life insurance, which by law have been virtually excluded from the equity market and confined to the debt market. Thus the more the government drives small investors into life insurance or savings, the worse the investment situation becomes. The essential saving of the machine age, risk capital, has been frightened away by the government.

Without being a pessimist and regarding the post-war period in terms of an " inevitable collapse ", even the most optimistic person must grant that there will be a period of severe readjust-

ment. A tough and resilient economy will be needed—one capable of rapid and reasonably smooth readjustment.

The facts regarding new equities and those regarding the thinness and brittleness of the security market all reflect, not a growing resiliency, but a declining capacity for rapid and smooth readjustment. One of the central problems of post-war planning, of which we hear so much and see so little, is procedures which will restore strength and fluidity to the shock absorbers of the machine age. As one S. E. C. commissioner says, " We have plenty of capital . . . but it cannot do us much good unless it flows freely." You cannot organize for victory by disorganizing the financing of business.

There is a fifth way in which government has not organized to utilize the machine for victory. The machine makes labor not less important, but more. This is reflected in the assertion of the Office of Production Management that " the interruption of work by strikes or slowdowns is the greatest help the aggressors can get in these days when matériel on the battlefield is everything." " Everything " is a large word—and perhaps the British and the Russians think that there have to be some men there with the machines—but even discounting it somewhat, one would expect to find clear definitions of responsibility and explicit statements of policy. The realities are quite different.

Administratively, there is division of responsibility between the Department of Labor, the National Labor Relations Board, the National Defense Mediation Board, and the Office of Production Management. To put it mildly, there are distracting conflicts of authority and foggy definitions of power.

Without being in the slightest degree personal, the Labor Department does not enjoy full public confidence; the Labor Relations Board was long internally chaotic and is still controlled by an intentionally partisan law; the Defense Mediation Board lacks either the courage to announce a general policy or the insight and clarity of mind to develop one; and the Office of Production Management, by the explicit public testimony of its co-administrator, yielded to " irresponsible elements ". When you unroll that blueprint, it does not look precisely like a design for industrial production in which " matériel on the battlefield is *everything.*"

It is the obligation of government to act without fear or favor. On the labor issue government has acted with both fear and favor. Within the space of a single week we saw the government caught on both horns of its dilemma, first fearing to exercise its powers under the law and then being all but impotent in the coal strike because it had abdicated power by law.

Among our war aims, and they are magnificent, is freedom from fear—*everywhere in the world.* The Atlantic Charter in its eight points looks forward to joining with Britain in policing the world. Yet recently, on the testimony of a responsible official, the government abandoned its normal procedures in fear of " irresponsible elements ". We cannot hope to police the world if our own police power is impotent before potential lawbreakers. Having just learned the hard way that we cannot escape war by running away from it (and I have been for the repeal of the Neutrality Act since the day before it was adopted), it ought not to be necessary to discover afresh that we cannot avoid domestic " chaos " by running away.

It is not disputed that the leading labor statute frankly abandons one basic principle of our constitutional system—the principle of equality before the law. Under the Wagner Act the management of enterprise and the management of labor—not the laborer but the management of labor—are treated wholly differently.

The machine age requires the coöperation of many different agencies. Raw materials, parts, finishes are all specialties; only in union is their strength. We now have the spectacle of government-protected labor unions boycotting other government-protected labor unions who wear a different old school tie or use a different grip. Thus the strong or the strategically located unions can force the smaller groups to lose their identity or surrender their existence, and also break up the productive process by boycott. It is all perfectly legal, but gives evidence that the government is not organized for the machine age.

Under interpretations of law by the Supreme Court of the United States, a union can legally conspire to prevent the use of more efficient methods of production and defeat the explicit presupposition of the machine age. Painting, for example,

may have to be done by old methods, spread by hand with a brush of a certain size. That is only one illustration; other methods of efficient production are effectively prohibited by privileged bodies operating under legislative sanction. The ostensible purpose is to protect the workman in his job; but the real effect is to raise costs. The public is needlessly taxed to perpetuate inefficient methods, and fellow workmen are denied the fruits of the industrial revolution. When, under a stabilization agreement, or any other synonym for a quasi-monopoly, public authority connives, even by inference, at retarding the use of efficient methods, is not government itself standing as a barrier to production, and at the precise moment when the greatest strain is put upon our productive capacity? The net effect is to reduce the standard of living. That is not the road to freedom from want.

The central difficulty comes from governmental misinterpretation of the machine age. Never before was unity at once so important and so readily available. Never before have hand and brain needed to work so closely together, nor have the fruits of that union been so rich. Never before was the interpenetration of interest so complete and the interplay of forces so powerful. Never in all history did the web of circumstance bind all men so closely together, and never did transportation give them such mobility and capacity to adapt themselves to current needs. Never did the educational process and the means of communication and enlightenment so fully lay before all men the realities.

Those are the facts the government should utilize for the organization of the machine age for victory. But by false definitions of class interest, by the unequal protection of the laws, and by conferring political favors upon small groups, government action has contributed to rifts in this essential solidarity. Hostility or favoritism to various groups for political purposes has impaired the unity that is not only desirable but necessary. Democracy cannot organize for victory by stimulating the false and divisive class consciousness of the Communists. Nor should it resort to the Nazi practice of the dominant leadership of the state. The task of democracy is to exploit the unity

which arises from mutual interests, common ideals, and integrated activity. The problem is to organize not only for victory but for the peace that follows. The program must involve reorientation of political action, restoration of the equal protection of the laws, and realization of the unity and the wealth which the machine age makes possible. (Applause)

Remarks by the Chairman

Chairman Luce: Dr. Wriston, you have given us a vivid and penetrating lesson in political economy, and the *Fortune* survey indicates that it has been highly appreciated.

I think that many of us will like to remember the remark that "The qualities which are necessary for victory are the qualities of men." Included in these qualities surely are intelligence and honesty. We will demand of our government that it give us, in the days to come, the utmost of these qualities, and we will pledge that the government shall have from us the best that we have of these qualities, whenever and however it asks for them.

Mr. Wallace, we know that you will give us your utmost best of these and of all your great qualities. We are deeply grateful to you for coming here tonight. As you return to Washington to take up again the great burdens of state, the great burdens of organizing for victory, we want you to know that we will be thinking of you, that we will be wishing you God's help in all you do.

The meeting is adjourned.

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